NETWORK WORLD

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SHOW SPOTLIGHT

New FEP headlines IBM ComNet rollout

Controller addresses horsepower deficit.

IBM's 3745 Communication Controller at a glance
Models 210 and 410

Number of central control units (CCU)	1 or 2
Storage	4M bytes or 8M bytes per CCU
Maximum duplex-line attachments	512
Maximum line speed	1.54M bit/sec
Host attachments	16
Token-Ring Network adapters	8
T-1 lines	8
Line interfaces	RS-232, RS-366, CCITT V.24, V.25, V.35, X.21, wideband and direct attach

CHART BY SUSAN J. CHAMPENY — SOURCE: IBM, RYE BROOK, N.Y.

BY PAUL KORZENIOWSKI
Senior Editor

WASHINGTON, D.C. — As expected, IBM last week announced a high-end front-end processor designed to mitigate the performance limitations of its present processor and advance peer-to-peer network capabilities within SNA.

The IBM 3745 Communication Controller, one of 26 products IBM introduced at Communication Networks '88, can support multiple T-1 links and more connections than the company's current 3725, but it is not intended to replace that device ("IBM to introduce two front-end processors," *NW*, Nov. 2).

The company also improved Systems Network Architecture support for X.25 equipment, doubled the capacity of its channel-to-channel mainframe link product and pledged to expand its voice management capabilities.

Two 3745 models will be available: the Model 210 and the Model 410. Both support modular interfaces and can be configured to support a mix of as many as eight T-1 lines, eight IBM Token-Ring Networks and 512 full- or half-duplex channels operating at up to 56K bit/sec. As many as 16 mainframe connections can be supported.

For other ComNet '88 coverage, see pages 2, 4 and 7.

The Model 210 supports up to 8M bytes of memory and a 45M-byte hard disk drive. It ranges in price from $125,000 to $1.3 million.

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COMNET '88

LAN firms take show by storm

Novell, SynOptics, 10net offer wares.

BY JOSH GONZE AND MARY PETROSKY
Network World Staff

WASHINGTON, D.C. — Local network vendors made their presence known at the Communication Networks '88 show here last week with new products designed to help users link local nets with larger processors and cut the cost of installing personal computer networks.

At this year's ComNet, some 50 vendors unveiled or exhibited local networking products. The high profile struck by those companies reflects the strength of the local

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NETWORK EVOLUTION

Bank hones its strategic edge

BY BOB BROWN
Staff Writer

WALTHAM, Mass. — BayBanks, Inc., one of the fastest growing banks in New England for the past five years, owes much of its success to a strategic, proprietary ATM network it put in place in the late 1970s.

The sprawling network of BayBanks X-Press 24 automated teller machines helped BayBanks increase assets 17% on average for

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MANAGEMENT UPDATE

Managers must sculpt styles to fit jobs, say top experts

BY PAUL SUSCA
Special to Network World

Defining management style is an elusive task. In some situations, a manager's unique manner of expression can be calculated for maximum effectiveness. At other times, it can simply be a natural outgrowth of his or her personality.

For managers who wish to take on the task of molding their style to fit the job, there is abundant advice on what elements to include. In this special feature, Network World *presents the views of telecommunications managers, management*

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NETWORK LINE

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Features

OPEN NETWORK ARCHITECTURE

RBHCs take first step toward ONA

Firms file FCC-ordered plans.

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — The regional Bell holding companies this week will complete the first phase of the FCC's Open Network Architecture (ONA) plan, which is designed to spur development of enhanced services for business and residential customers.

ONA is one of the primary tenets of the Federal Communications Commission's Third Computer Inquiry rules. RBHC compliance with the ONA plan is a prerequisite for permission to enter the enhanced services market.

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▶ *EARNINGS REPORT*

AT&T posts $2b profit for 1987

BY PAM POWERS
Senior Editor

NEW YORK — Despite a slight drop in revenue, AT&T posted a $2 billion profit for 1987, due in large measure to cost-cutting efforts that helped the carrier rebound from disappointing 1986 earnings.

AT&T reported preliminary 1987 earnings of $2.044 billion, up from $139 million last year, on revenue of $33.598 billion. This represents a 1% decline from 1986 revenue of $34.087 billion. Revenue from long-distance services and sales of computer products showed little growth during the year. But a corporatewide restructuring that eliminated 14,000 jobs and cut back manufacturing operations aided in AT&T's dramatic improvement in earnings, analysts said.

For its fiscal fourth quarter, ended Dec. 31, AT&T posted revenue of $8.6 billion, up 1% from the $8.529 billion posted for the corresponding quarter in 1986. Earnings soared to $498 million, as compared with a loss of $1.17 million in the fourth quarter of 1986. In that quarter, AT&T took a onetime charge for layoffs and plant closings that sharply cut earnings.

Revenue from the sale of long-distance services, which accounted for nearly 60% of total company revenue, grew by less than 3% in 1987, to $19.659 billion, compared with the corresponding 1986 figure of $19.108 billion. Calling volumes increased by about 5% for the year, AT&T said, and were particularly strong in international and 800 services.

Another 30% of annual revenue was generated by computer and communications product sales, which totaled $10.206 billion in 1987, up less than 1% from the $10.178 billion reported in 1986. Despite that sluggish growth, AT&T spokeswoman LuAnn Gardner said, "We feel we picked up momentum in product sales, with sequential increases in sales every quarter."

Increased sales of the company's 5ESS central office switch accounted for most of the growth in product revenue, Gardner said. Sales of

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▶ *RATE REGULATION*

Court ruling bars FCC from ordering refunds

Decision a boost to price cap plan.

BY PAM POWERS
Senior Editor

WASHINGTON, D.C. — In a ruling that may strengthen the move to adopt price cap regulation on AT&T and the regional Bell holding companies, a federal appeals court last week barred the Federal Communications Commission from ordering carriers to refund money when they exceed allowable rates of return.

Because the court's decision points out problems with rate-of-return regulation, it adds fuel to the movement to abolish such regulation in favor of a price cap plan. AT&T, the RBHCs and the FCC have all argued for the plan, saying it would give the carriers an incentive to operate their networks more efficiently and pass savings on to users.

The decision to invalidate the FCC refund rule is an immediate victory for the RBHCs: They can now keep multimillion dollar refunds that the FCC had said late last year they must return to consumers.

Analysts had mixed reactions as to how the ruling might affect the prices consumers pay for carrier services.

In an opinion issued by a three-judge panel, the appeals court invalidated the FCC's refund rule, which has been in effect since 1985. Under that rule, the carriers had to refund to customers any revenue generated above a predetermined rate-of-return ceiling

The FCC has imposed rate-of-return regulations on several segments of the carriers' businesses. Under the refund rule, a carrier could earn below its allowable profit margin from private lines, for example, but still be forced to refund money it "overearned" from another service segment.

In its ruling, the court said, "The rule requires a carrier to refund any earnings above the upper bound of the target [rate of return], while the carrier may not recoup any earnings shortfall below its target. Thus, over the long run, the carrier is guaranteed to fall short of its required rate of return."

In its response, the FCC "acknowledged that the rule introduces a systematic bias that operates to depress carrier earnings below their target over the long run." Consequently, the FCC will review the procedure and either change its rule to allow carriers to compensate for earning shortfalls by raising rates or it will abolish its rule, presumably in favor of price cap regulation.

In the meantime, the FCC has told the RBHCs they don't have to

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▶ *LONG-DISTANCE WARS*

US Sprint slashes rates, adds services

BY BOB WALLACE
Senior Editor

WASHINGTON, D.C. — US Sprint Communications Co. last week said it will cut its long-distance rates by an average of 4.1%, revamp pricing for its Virtual Private Network (VPN) service and introduce two new toll-free 800 services.

The announcements, made at the Communication Networks '88 conference here, came just weeks after competitors AT&T and MCI Communications Corp. announced they would slash their long-distance rates by 3.5%.

Analysts said AT&T is closing the gap between the cost of its services and those offered by US Sprint and MCI. Robert Ellis, president of The Aries Group, Inc., a Rockville, Md.-based tariff analysis firm, said US Sprint's service prices are currently 6% to 10% less than AT&T's. But once the planned price reductions take effect, US Sprint's differential will drop to only 2%, he said.

However, Bill Reed, director of electronic communications services for Link Resources Corp., a New York-based communications consulting group, said users do not buy long-distance service on price alone. "Price is less and less of an issue in choosing a long-distance carrier," he said. "Price is simply one of many deciding factors that include quality of service and billing."

US Sprint's rate reductions will be filed with the FCC this month. The proposed cuts call for at least a 3.6% cut for interstate long-distance service. US Sprint's Dial 1 WATS and Sprint Advanced WATS Plus services will be cut 5.7%. Rates for Ultra 800 will drop between 5% and 6%. The carrier said the price of its Ultra WATS could drop more than 5.2%, depending on final analysis of the Bell operating companies' access charge reductions.

US Sprint also announced Fonline 800 and Openline 800, two new offerings due to be introduced in the second half of this year. These toll-free services are targeted at small and medium-sized businesses.

Ed Meko, director of pricing and product analysis for US Sprint, said pricing for the two services will not be available until late February or early March.

Fonline 800 will use dial-up lines to access US Sprint's long-distance network. The carrier said the service is designed for businesses with up to 1,200 hours per month of 800 service per location.

Fonline 800 features will include single-number service for inter-

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Network World wants to make its news coverage even better, and for that we ask your help. If you know of an interesting event that just occurred or is about to occur, please call. We'd also like to know how you optimize your networks. Call Editor Bruce Hoard toll free at (800) 343-6474.

Correction: The article "COO Amman set to revamp WU" (*NW*, Jan. 25) incorrectly stated the title of Western Union Corp. President and Chief Executive Officer Robert Amman. Contrary to the story, Amman has 25 years of experience in the computer and communications industries, including 14 years as president of Wiltek, Inc. *Network World* regrets the errors.

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▶ *DATA SERVICE OPTION*

AT&T to offer combo of SDN/Switched 56

BY BOB WALLACE
Senior Editor

WASHINGTON, D.C. — AT&T last week detailed plans to support Accunet Switched 56 Service under its Software-Defined Network (SDN) service, enabling SDN customers to support 56K bit/sec virtual data circuits.

The option, announced at the Communication Networks '88 conference here, is designed to make data network applications — such as bulk data transfer, video teleconferencing, graphics transmission and high-speed facsimile — attractive to SDN users.

Like SDN, the data option is designed for corporations that don't have enough traffic volume to cost-justify leased facilities. SDN is provided over AT&T's switched network but offers the benefits of a private-line network, such as extension dialing.

Analysts said integrating the services may serve to boost flagging user interest in Accunet Switched 56 Service, an offering typically used in backup applications.

AT&T said it would upgrade 100 of the existing 550 SDN serving offices to support Switched 56 data service. That will more than double the number of Switched 56 serving offices, which today number only 83.

Increasing the number of access points for Switched 56 will also lower the cost of the service in many situations by lessening the length of the dedicated access circuits needed to tap an AT&T node supporting Switched 56.

> "AT&T is taking advantage of a big marketing opportunity by linking the services," the analyst said. "[AT&T] is offering users the best of both worlds."

SDN users will be able to access Switched 56 services in one of two ways. "Static" access will require use of a dedicated 56K bit/sec Dataphone Digital Service link or a 56K bit/sec DS0 channel within an Accunet T1.5 channel between the user site and the SDN serving office.

"Dynamic" access will be supported over dedicated T-1 access trunks only. With dynamic access, customers will be able to use a DS0 channel within a T-1 pipe to support a Switched 56 access link one minute, and then later use that same channel to support a voice link or another type of data link.

AT&T will file the SDN option with the FCC this month. The carrier said the feature will be available by mid-year, pending FCC approval.

Prices for the feature will include a onetime installation charge and a monthly charge for each SDN location equipped for data transmission at 56K bit/sec.

Bob Reinhold, a consultant with Network Strategies, Inc., a Fairfax, Va.-based communications consulting concern, said SDN users will find several uses for the data-handling option.

The SDN data option "could be used for backup of other dedicated data links, for point-of-sale applications or for after-hours downloading of data from one to many locations," Reinhold said.

One industry analyst, who requested anonymity, suggested the SDN-Accunet Switched 56 service combination represents an acknowledgment by AT&T of users' need for hybrid networks comprising leased lines for data and on-demand virtual links for voice communications.

"AT&T is taking advantage of a big marketing opportunity by linking the two services," the analyst said. "[AT&T] is offering users the best of both worlds."

▶ *DEC-TO-IBM*

DECnet-to-SNA E-mail gateway debuts

BY JOSH GONZE
Senior Writer

WASHINGTON, D.C. — Bolstering the bond between IBM's SNA and DECnet, Digital Equipment Corp. last week unveiled an electronic mail gateway that lets DEC E-mail users exchange messages and documents with users of IBM's Professional Office System (PROFS).

At the Communication Networks '88 show here, DEC also announced that its DECnet/SNA Gateway is compatible with IBM processors running under the VM and DOS/VSE operating systems.

Technically, that capability already existed in the gateway, but DEC had limited its approved use to computers under IBM's MVS operating system.

All DEC-to-IBM application gateways, such as links between E-mail systems, are designed to work in conjunction with DEC's Systems Network Architecture gateway. Since PROFS runs on VM-based computers only, the certification was necessary to support the new PROFS E-mail gateway.

The new PROFS E-mail gateway, called VAX Message Router/P Gateway, preserves the existing user interfaces, so end users do not have to learn new E-mail commands.

For example, a PROFS user can send a note or document to DEC's All-In-1 without knowing anything except the All-In-1 user's E-mail name.

DEC already offers an E-mail gateway to IBM's DISOSS — an MVS-based office package — that works in conjunction with the same SNA gateway. But the VM-based PROFS is more widely used than DISOSS because it is less complex and less expensive, according to Dale Kutnick, vice-president of Stamford, Conn.-based consultancy Gartner Group, Inc.

"This announcement brings DEC further into the IBM world and closer to the commercial accounts there," Kutnick said.

The PROFS link also allows the exchange of text messages but not documents between DECnet and IBM's CMS Notes messaging software.

Compatibility opens door

The SNA gateway's compatibility with non-MVS operating systems opens the door to four important types of IBM-to-DEC applications, according to Dave Korf, manager of wide-area networking and systems at DEC.

In addition to the PROFS interface, Korf said that the enhanced SNA gateway would support terminal emulation, an applications programming interface and remote job entry.

DEC's interfaces for linking different E-mail systems are grouped under DEC's Mailbus product family. Other Mailbus products include: the Message Router/S Gateway, for IBM's SNA Distribution Services; VAX Mailgate for MCI, for MCI Communications Corp.'s MCI Mail network; and the Message Router X.400 Gateway, for X.400 networks.

The Mailbus products are designed to run on any VAX or MicroVAX in a DECnet network.

The message routers contained in each Mailbus E-mail gateway work in conjunction with either of two DEC-to-IBM gateways. Besides the newly enhanced DECnet/SNA Gateway, which runs on a DEC PDP-11, DEC offers VMS/SNA, which is a VAX-resident software connection.

The VAX Message Router/P Gateway is priced from $1,500 for a VAXstation II to $36,000 for a VAX 8800. It will be available in March.

The enhanced SNA gateway, designated V1.4, appears to the SNA network as a PU 2 node, and to the DECnet network as a DECnet Phase IV end node.

It works with MVS/SP and MVS/XA, VM/SP, DOS/VSE/SP, CICS/VS, IMS/VS, ACF/VTAM and ACF/NCP.

The DECnet/SNA Gateway software is priced at $16,500.

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▶ *CORPORATE REORGANIZATION*

IBM shuffles core units

Seeks agility to deal with market flux.

BY PAM POWERS
Senior Editor

ARMONK, N.Y. — IBM last week announced a major corporate restructuring that shifts power from a management committee to five independent business units managed by the top executive in IBM's current communications organization.

Effective immediately, the five business units, organized by product areas, will have worldwide development and marketing responsibilities in addition to overseeing U.S. manufacturing operations.

Formerly, IBM divisions were steered by a management committee headed by Chairman John Akers. The new structure is designed to give the business units more authority and greater flexibility to react to market forces.

Analysts said IBM's disappointing financial results in past quarters prompted the changes.

A new organization, IBM United States, assumes responsibility for all U.S. operations. Under IBM United States are five independent business units and a sixth U.S. sales and service unit. That unit, formerly called Information Systems and Communications Group, is now the U.S. Marketing and Services Group.

IBM named Terry Lautenbach, formerly group executive of the Information Systems and Communications Group, to the post of general manager of IBM United States.

The new business units are:

■ **IBM Communications Systems.** Responsible for all communications products, this unit contains two divisions, the Communication Products Division (CPD) and Rolm Systems Division. Ellen Hancock, former president of CPD, was named general manager of IBM Communications Systems. James Vanderslice, formerly an executive in the Information Systems and Products Group, was promoted to president of CPD.

■ **IBM Enterprise Systems.** This unit takes responsibility for IBM System/370 products and related operating systems software. It is headed by Carl Conti, former group executive of the Information Systems and Storage Group.

■ **IBM Application Business Systems.** This unit oversees IBM System/3X products, low-end storage and related software. Stephen Schwartz, former president of the Systems Products Division, is now general manager of this group.

■ **IBM Personal Systems.** This unit is responsible for personal computers, typewriters, some peripherals, copiers, publishing systems and related software, among other things. The unit is headed by General Manager George Conrades, former group executive of Information Systems and Products Group.

■ **IBM Technology Products.** This unit is responsible for semiconductors and packaging for systems and technology products.

FCC barred from ordering refunds

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pay their currently pending refunds. The RBHCs all earned beyond their allowable rates in 1987; several had been ordered to return in excess of $30 million.

BellSouth Corp., which was to refund $16 million to consumers, said it was a "good decision" to strike down a ruling that did not provide for earnings shortfalls but penalized for excess earnings.

But Sam Simon, president of the Washington, D.C.-based consulting firm Issue Dynamics, Inc., called the decision "a great loss of a regulatory system that protected the consumer."

Simon said the FCC could conceivably keep the rate-of-return regulation by establishing a procedure by which the carriers could recoup earnings shortfalls by raising rates. Under that scenario, Simon said, "If in a bad year, companies fall 50% below their authorized rate of return, they could double or triple their rates to make 50% above that rate the next year. We could see wild price swings."

"My opinion is that the FCC will use this as another reason [to strengthen its case] that rate-of-return regulation is flawed," said George Dellinger, a partner with Washington Analysis Corp. in Washington, D.C.

"Rather than spending time fixing a flaw in a regime they don't like, they will ask for the opportunity to implement a price cap," he added.

The FCC has already proposed, in a separate filing, that rate-of-return regulation be abolished and price caps be imposed on the carriers instead. AT&T would be subjected to a price cap first, followed by the RBHCs.

LAN firms take show by storm

continued from page 1

network market, but it also indicates the blurring line between local- and wide-area networks, according to Darrell Miller, vice-president for corporate marketing with Novell, Inc.

Novell and a number of other local networking companies, including SynOptics Communications, Inc. and 10net Communications, Inc., debuted products at ComNet.

Exhibiting at ComNet for the first time, Novell announced NetWare LU 6.2, software for its family of Systems Network Architecture gateways that supports IBM's LU 6.2 protocol. Novell also introduced two Token-Ring Network gateway products that provide direct connections to IBM hosts.

Novell, like Apple Computer, Inc. ("Apple to unveil LU 6.2 gateway for Macintosh," *NW,* Jan. 25), has joined the growing ranks of vendors supporting LU 6.2, IBM's protocol for program-to-program communications. Novell officials said the company sees support for LU 6.2 as part of a larger strategy of helping users link their local networks to host computers.

Along these lines, the company announced last week that it plans to integrate its mainframe communications products into NetWare and will expand NetWare connectivity to other computing environments. The company will announce basic 3270-emulation software for workstations will be included with its high-end NetWare offering, according to Robert Craven, president of Novell's Communications Products Division. Gateway software will be integrated into NetWare in the future.

NetWare LU 6.2 consists of software for both the gateway and network workstations. It is designed to support network applications that use LU 6.2 for host communications.

It also supports 3270-terminal and host emulation. This capability is unique in the market, said Craig Burton, senior vice-president of corporate development at Novell. The ability to toggle between LU 6.2 and 3270 terminal-emulation sessions is important because "old 3270 applications won't just go away," Burton said.

The NetWare LU 6.2 software initially will be implemented on a Token-Ring or coaxial cable gateway connected to an IBM 3174 controller. These gateways support 128 and five host sessions, respectively. Future versions of NetWare LU 6.2 will support up to 40 host sessions through a cluster controller gateway, and 16 or 64 sessions over a Synchronous Data Link Control gateway.

NetWare LU 6.2 was designed to be hardware- and vendor-independent. As a result, it can be used with coaxial interface boards from Novell as well as from Digital Communications Associates, Inc. (DCA) and other vendors. It will run on all NetWare-supported local networks as well as over Network Basic I/O System-compatible local nets from other vendors. The software currently operates under MS-DOS; OS/2 will be supported in a future version.

Novell sees LU 6.2 as central to IBM's Systems Application Architecture, which is aimed at providing applications and communications compatibility across the range of IBM's systems, Burton said. For OS/2 networking, LU 6.2 will eventually replace the Server Message Block protocols now used for workstation-to-server communications, he said.

LU 6.2 capabilities are important because IBM has identified LU 6.2 as its long-term strategy for peer-to-peer networking, according to Douglas Gold, senior analyst at International Data Corp., a Framingham, Mass.-based research firm. "It's a shrewd move for them. Novell is setting the stage for its LANs and IBM's to communicate on a peer-to-peer basis," he said.

Novell's new Token-Ring gateway provides a direct Token-Ring connection to IBM hosts via an IBM 3725 front-end processor or 3174 controller. This gateway software can be used with any IBM Token-Ring or compatible network interface card. It can run on a Novell server or IBM Personal Computer, XT, AT, Personal System/2 or compatible. Networked workstations must run 3270-emulation software.

An alternative to the gateway, the NetWare Token Ring Multi product, provides a single user on a network with multiple concurrent host sessions through a direct Token-Ring connection to a host. As many as five 3270 display sessions, four printer sessions and one DOS session are supported.

NetWare LU 6.2 will be included free of charge with all Novell gateways beginning in the second quarter. Upgrades for existing gateways cost $100. The NetWare Token Ring Gateway is priced at $550, and the Token Ring Multi is $395. Both will be available during the second quarter of 1988.

In a development that could lower the cost of installing an Ethernet network, SynOptics and Mi-

com-Interlan, Inc. jointly introduced an Ethernet card that incorporates an on-board, personal computer-based transceiver for unshielded twisted-pair wiring. Previously, running Ethernet over twisted pair required an outboard transceiver between the workstation and the wire.

The new card reduces the cost per connection for a SynOptics network from about $500 to about $410, according to Michael Clair, vice-president for marketing and sales at the company.

10net Communications, a local networking subsidiary of DCA, announced a Transmission Control Protocol/Internet Protocol interface that enables the company's 10net local network to support TCP/IP protocols.

The company said TCP/IP support means 10net users will be able to connect Digital Equipment Corp. VAXes and Unix-based machines to their networks.

Aiming for a share in the government market, where TCP/IP is widely used, 10net signed a contract earlier this month that will allow the company to port Network Research Corp.'s TCP/IP software to its own network.

10net also announced a new release of 10net local networking software, called 10Net 3.3, that provides disk caching. The purpose of disk caching is to store more data in memory, as opposed to disk, and, thus, increase network performance.

▶ *COMNET '88*

IBM adds to X.25 line, enhances 3737 unit

BY PAUL KORZENIOWSKI
Senior Editor

WASHINGTON, D.C. — In a series of product announcements at Communication Networks '88 last week, IBM buttressed its X.25 network offerings, doubled the capacity of its 3737 mainframe channel-to-channel connector and pledged to expand its voice network management offerings.

The X.25 products address analysts' criticisms that IBM's X.25 products are poor performers, too expensive and inadequately supported. "IBM customers have had difficulty justifying X.25 within their SNA networks," said Atul Kapoor, vice-president at Kaptronix, Inc., a Haworth, N.J., consulting firm.

Last week, IBM made X.25 SNA Interconnection (XI) a fully supported, licensed product. Previously, it was available only as a special option. XI enables devices with X.25 interfaces to be supported in SNA networks. A second release of the product, which will be available in December, is said to provide improved performance, ease of use and connectivity options.

The company also unveiled X.25 SNA Network Supervisory Function, which enables IBM's NetView network management tools to control, monitor, test and collect performance information from X.25 equipment. "It was essential for IBM to provide NetView support for X.25 equipment," said Frank Dzubeck, president of Communications Network Architects, Inc., a Washington, D.C. consulting firm.

X.25 SNA Network Supervisory Function comes in two versions. The first release will be available in June, and the second, which will enable customers to add nodes to an X.25 network dynamically, will be shipped in October. A one-time licensing fee costs between $12,000 and $19,200.

IBM also said it has rewritten its Network Control Program Packet Switching Interface (NPSI) and boosted NPSI performance by more than 40%. NPSI enables an IBM front-end processor to be directly connected to an X.25 transport link. Prior to the announcement, many customers were reportedly unhappy with NPSI's performance.

IBM did not, however, lower prices for X.25 products, a common user complaint. Onetime charges for XI range from $15,120 to $75,600 and carry a monthly charge ranging from $420 to $2,100.

NSPI's licensing fees run between $12,000 and $32,400, with monthly fees ranging from $250 to $675.

Also at ComNet, IBM announced it had doubled the capacity of its 3737 Remote Channel-to-Channel Unit. Model 2 of the 3737 is a stand-alone control unit that enables IBM System/370-type hosts to be channel-attached using T-1 1.54M bit/sec digital network services. In European applications, the 3737 will support T-1 equivalents at 2.084M bit/sec. The unit is said to provide point-to-point, bidirectional connections under the management of NetView/PC with generic alerts sent to NetView.

Because it supports bidirectional links, a 3737 actually provides a

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"TransLAN GAVE US TRANSPARENT COMMUNICATION BETWEEN PEOPLE AND EQUIPMENT ACROSS THE COUNTRY."

—Douglas Fairbairn,
VP and General Manager, ASIC Division, VLSI Technology, Inc.

As a rapidly growing leader in the Application Specific Integrated Circuit (ASIC) market, VLSI Technology, Inc. needed to be able to easily move ASIC design files and to share software design tools between its locations across the country—with absolute accuracy. A network of leased lines just wasn't cutting it anymore.

VLSI Technology looked at a lot of alternatives. They chose Vitalink.

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Fairbairn says this about the results: "We needed to improve our communications fast to keep our competitive advantage. Vitalink met our tough schedule and the system worked from day one. And when it came on line, the noise and problems we'd been having with our data communications disappeared and our connectivity improved by orders of magnitude."

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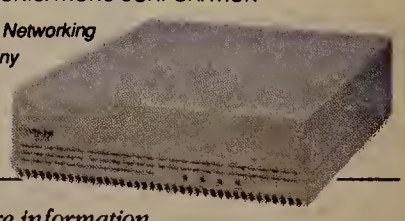

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INDUSTRY UPDATE

BELLCORE appointee to usher in ISDN

Bell Communications Research, Inc. recently named Patrick White to the post of assistant vice-president of new architecture and services concepts planning. White will be responsible for overseeing and assisting in BELLCORE's attempts to evolve the current telephone system into a software-controlled network that will support Integrated Services Digital Network.

NETWORK MANAGEMENT

Netline offers mid-sized firms net control option

BY PAM POWERS
Senior Editor

WASHINGTON, D.C. — Start-up Netline Communications Corp. made its debut here last week with a facilities-based network management system aimed at mid-sized users with private networks.

Netline claims to be the first company to provide a customized network management service that is both carrier- and hardware-independent, and that can be managed either at the user site or from a central location. The cofounders developing this comprehensive management package are former Telco Systems, Inc. Chairman and Chief Executive Officer Philip Otto and former US Sprint Communications Co. Director of Transmission Engineering Ming Lee.

"We have expertise we can package for users that they otherwise wouldn't have access to," said Otto, Netline chairman and CEO. "Users today need specialists to optimize their networks."

Otto and Lee, in conjunction with Darrell Yim, former manager of network services for Macy's California, Inc., are developing a management system that will be available by the third quarter of this year and will complement currently available capabilities, Otto said.

The six individual service modules that will be available for users to purchase independently are: network management, including surveillance and control; system engineering and integration, including design and capacity planning; transmission services management; administration and operation; maintenance; and equipment financing.

Those services that do not require the aid of the network management software are available immediately to users and include configuration control, surveillance, operations and accounting. Netline will provide the remaining services with the aid of a system data base that will contain detailed information on every customer's network.

Netline debuts at ComNet '88

Business:
- Third-party private network management services

Founders:
- Philip Otto, former chairman and chief executive officer, Telco Systems, Inc.
- Ming Lee, former director of transmission engineering, US Sprint Communications Co.
- Darrell Yim, former manager of network services, Macy's California, Inc.

Target user:
- Medium-sized company with a private network

Distribution channel:
- Direct, initially targeting California and the East Coast

Competitors:
- PacTel Spectrum Services
- Codex Corp.

Service availability:
- Third-quarter 1988

SOURCE: NETLINE COMMUNICATIONS CORP., SAN MATEO, CALIF.

The system will run on a 32K bit/sec microprocessor-based computer system that will most likely support three software platforms, according to Lee, Netline's vice-president of operations and technology. It is certain that the system will run Unix, and it may also run OS/2 and MVS, he said. The system will interface with a variety of protocols, including IBM's NetView and the International Standards Organization's Open Systems Interconnect (OSI), by processing different forms of text into a uniform format.

While some parts of the software will be developed in-house, Otto said Netline will also rely on other vendors' systems. "There are a lot of sophisticated network management tools out there that work well. We're not going to reinvent the wheel. We are evaluating what products to package into our service on an OEM basis."

The service that Netline will offer with the help of Lee's management system is different from other similar services on the market in that it provides either centralized or on-site management of multivendor networks. Users can also choose among a number of service modules that allow them to give to Netline as much or as little responsibility as they wish.

"We can take over the entire network for the company by putting in our hardware at the customer site, or we can manage the network from an outside location and interface with the cus-

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CONSOLIDATION

AT&T to phase out SLC facility

Streamlining affects 3,300 jobs.

BY PAM POWERS
Senior Editor

WINSTON-SALEM, N.C. — Citing the increased efficiency of new technologies such as fiber optics, AT&T recently said it will phase out its manufacturing facility here, which employs 3,300 workers.

AT&T will consolidate the operations of this facility, which manufactures subscriber loop carrier (SLC) cable and electronics equipment, into other manufacturing locations in Massachusetts and Oklahoma over a three- to five-year period.

AT&T will first try to relocate some of the 3,300 employees from the facility here to one of the two other plants. Barring the need for extra people at those sites, the spokesman said AT&T will offer early retirement or, as a last resort, will lay off the remaining staff.

The phaseout period is designed to ensure continued availability of the SLC products, a spokesman said. The facility here will cease manufacturing only when the alternate facilities are prepared to pick up the slack.

The SLC Series 5 is viewed as one of AT&T's key product lines, the spokesman said. It is used in AT&T's Fiber to the Home trials and is critical to AT&T's attempts to sell information services directly to the customer over the

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INDUSTRY EYE
JOHN DIX

Industry alliances abound

The strategic alliances recently formed by Hewlett-Packard Co., Northern Telecom, Inc. and Codex Corp. are simply the freshest evidence that it is becoming increasingly more difficult for companies to go it alone.

Indeed, the company jostling — the mergers, acquisitions and joint development and marketing deals — that have taken place in the past 12 months may represent the most hectic activity in the industry's history.

In the case of HP, the Palo Alto, Calif.-based minicomputer maker has teamed up with switch maker Northern Telecom for sorely needed voice network technology, and it has teamed with Codex for wide-area data networking products. All three companies have reportedly agreed to bid together for some integrated network contracts.

A week before the HP deal broke, the high news of the week included four strategic alliances:

- Personal computer software vendors Microsoft Corp. and Ashton-Tate announced that they have teamed up to provide a distributed relational data base management system for IBM OS/2 environments.
- Apple Computer, Inc. and Digital Equipment Corp. announced an agreement to jointly develop products to bring Apple microcomputers into the DECnet fold.
- AT&T and NCR Corp. entered into a joint marketing agreement to offer retailers turnkey voice and point-of-sale networks.
- AT&T upped its stake in the Netherlands-based company Philips Telecommunications B.V., its joint venture with Philips Industries, N.V.

For the record, and the history books, here's a brief list of some of the other major deals that went down in the past 12 months:

- Mitel Corp. announced plans to acquire its largest distributor, the RCA Telephone Systems Business of General Electric Co.
- AT&T acquired a 20% share in Sun Microsystems, Inc.
- Vodavi Technology Corp. bought

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RBHC EARNINGS

Note: The 1987 fiscal year for all regional Bell holding companies ended Dec. 31, 1987.

US West, Inc. posted a 9.6% increase in earnings for fiscal 1987, to $1 billion as compared with $924.3 million in 1986. Revenue climbed to $8.4 billion, up less than 2% compared with $8.3 billion last year. Unregulated operations contributed $8.3 million to earnings for the year, compared with a contributed loss of $82.9 million in 1986. US West said the results were in line with expectations.

Pacific Telesis Group reported net income for the year of $950 million, down from the $1.08 billion posted for 1986. Revenue for 1987 grew to $9.13 billion, up from $8.98 billion in 1986. The company said earnings for the year were depressed by several factors, most of which occurred in the fiscal fourth quarter. Those included an early retirement program, a restructuring of unregulated operations and the impact of a California Public Utilities Commission ruling that affected Pacific Bell's rates. For the year, nonregulated operations contributed $1.38 billion to revenue, up from $1.33 billion in 1986.

Southwestern Bell Corp.'s fourth-quarter and year-end 1987 results last week showed revenue for the year grew to $8 billion, compared with 1986 results of $7.9 billion. Earnings rose to $1.05 billion, up from $1.02 billion last year. Commenting on the results, Chairman and Chief Executive Officer Zane Barnes said factors including the sluggish economy of Southwestern Bell's five-state region and the recent acquisition of cellular and paging businesses were instrumental in depressing earnings for the year.

Ameritech's income grew 4.4% for the year, to $1.19 billion, compared with $1.14 billion in 1986. Revenue also increased slightly, to $9.54 billion, compared with $9.36 billion in 1986. The Enterprise Group of unregulated Ameritech companies contributed more than half the company's income growth for the year. Ameritech cited higher expenses for the year from increased depreciation, higher wages and costs associated with growth in unregulated subsidiaries.

Nynex Corp. posted a 5% increase in yearly income, to $1.3 billion as compared with $1.2 billion in 1986. Revenue climbed to $12.1 billion, up from $11.3 billion for 1986. Chairman Delbert Staley said substantial investments, such as those to unregulated businesses, cut into income growth for the year and more than $2 billion was spent to maintain and upgrade the RBHC's network.

Bell Atlantic Corp. reported a 6% increase in earnings to $1.24 billion, as compared with $1.17 billion in 1986. Revenue grew from a 1986 total of $9.9 billion to $10.3 billion this past year. The Bell Atlantic Enterprise unregulated operations contributed $46.5 million to earnings for the year, on revenue of $876.5 million. Chairman and Chief Executive Officer Thomas Bolger emphasized that a corporate restructuring that took place on Jan. 1, 1988 will contribute to strong future earnings growth.

BellSouth Corp. earnings figures were not available at press time.

BRIEFS

US West Network Systems, Inc., the unregulated arm of US West, Inc. that makes and markets network management software, said it will redeploy about 17% of its work force, or fewer than 20 people out of 106, in an effort to eliminate job duplication and to keep the unit performing according to plan.

A company spokesman described the action as streamlining rather than downsizing; he emphasized that the division will continue to hire staff for new functions. Duplicate staff will be set up with other jobs, most likely within US West. The spokesman would not comment on whether Network Systems is profitable but said the unit is "solidly on plan and doing very well financially."

British Telecommunications plc said last week it will restructure its international value-added services in an effort to become a worldwide leader in electronic mail and other data services. The company's Dialcom, Inc. subsidiary, based in Rockville, Md., will be expanded to include the operations of the four Value Added Services Divisions that market to the U.S., UK, Europe and selected other countries. The reorganization will create a division that will employ more than 900 people, and it is expected to generate about $100 million in income its first year.

Microcom, Inc. last week announced its acquisition of Meridian Technology, Inc., an Irvine, Calif.-based company that markets communications software for IBM Personal Computers and compatibles. Microcom said the Meridian product line represents an "ideal fit" with Microcom's line of protocol modems, local network bridges and Integrated Services Digital Network-compatible interfaces. Terms of the deal were not disclosed.

Netline offers net control

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tomer through an information terminal. That way the customer can share control," Lee explained.

Otto said the need for Netline-type services is growing rapidly among medium-sized users.

"Users don't want to scrap their old equipment and, as a result, they develop complex multivendor environments as they grow. I see some integrating and consolidating capabilities that we can provide through our service that aren't going to take three years and $30 million to develop."

Currently, Netline's only competitors are PacTel Spectrum Services and Codex Corp., both of which offer similar facilities-based management services. AT&T, of course, offers such a service, but Otto said the carrier targets the high end of the user population.

Netline is unique, he insisted, because of its modular approach and its emphasis on targeting the medium-sized user. Otto defined that group as those that spend $1 million to $15 million a year on communications.

Netline's service comes at a time when industry watchers are saying users are starting to demand more control over their own networks.

Users are more wary, the pundits observe, of turning over management to a third party.

Otto hastened to allay any fears that Netline's service would encroach on the user's turf. "We're not trying to replace the telecom manager. We want to be his support — to allow him to take his eye off the day-to-day problems and give him time to focus on how to optimize his resources."

Because of its limited resources, Netline will initially have to focus on selling to users based in California and on the East Coast. "We cannot fail to deliver this service, and we have to have critical mass behind the offering," Otto said.

AT&T to phase out SLC facility

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local loop. However, advances in microelectronics and software and the high capacity of fiber optics have reduced the need for SLC systems.

"We are becoming much more efficient," the spokesman said. "To remain competitive, we have to continue to reduce our manufacturing costs."

The Massachusetts factory currently manufactures lightwave equipment and other transmission facilities. The Oklahoma plant manufactures AT&T's 5ESS central office switch.

In the fourth quarter of 1986, AT&T posted a onetime $3.2 billion charge to earnings, $1 billion of which was slated for consolidation of warehouses and other facilities. The company will use that money to pay for the costs associated with the plant closing, including severance payments.

Industry alliances abound

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Contel Corp.'s Executone unit.

- Vodavi also merged with ISOETEC Communications, Inc.
- Memorex International N.V. picked up The Telex Corp.
- Timeplex, Inc. was acquired by Unisys Corp.
- DEC formed alliances with Northern Telecom, Mitel, NEC America, Inc. and other private branch exchange makers as part of its Computer Integrated Telephony project.
- Digital Communications Associates, Inc. added local network maker Fox Research, Inc. to its growing list of holdings, which include recently acquired T-1 multiplexer maker Cohesive Network Corp.
- Paradyne Corp. established a resale agreement with T-1 vendor Spectrum Digital Corp.
- Codex inked a pact with T-1 multiplexer maker StrataCom, Inc.
- Apple bought a minority interest in Touch Communications, Inc., a company that develops network software that is compliant with international standards.
- Compagnie Generale des Constructions Telephoniques, the French monopoly telephone equipment manufacturer, was acquired by a group of companies led by Ericsson.
- Contel Corp. and Communications Satellite Corp. attemped to join forces, but their attempt ultimately failed.
- Contel ASC acquired Equatorial Communications Co., a manufacturer of very small aperture terminal satellite data network equipment. Contel ASC also bought COMSAT Technology Products, which makes Ku-band equipment.
- Siemens Information Systems, Inc. purchased Tel Plus Communications, Inc., the switch distributor.
- Local net maker Novell, Inc. acquired CXI, Inc., a company that makes microcomputer-to-mainframe link products.
- 3Com Corp and Bridge Communications, Inc. agreed to merge.
- Bolt Beranek and Newman, Inc. acquired Network Switching Systems, Inc., a T-1 multiplexer maker.
- Hughes Aircraft Co. bought M/A-Com, Inc.'s Telecommunications Division.
- MCI Communications Corp. picked up RCA Global Communications, Inc., an international record carrier it added to its other international Telex businesses.
- Dowty Group plc bought Datatel, Inc., a maker of T-1 multiplexers.

While many of these events were sparked by simple industry consolidation born of basic economics, the gyrations and acquisitions can also be attributed to shifting user needs.

Vendors need more of the pieces in their product portfolios than they used to. No longer can companies like HP afford to approach customers without comprehensive networking products to back up their computer wares.

DATA DELIVERY/ NET MANAGEMENT

"We are looking at a shakeout in the data communications industry that could begin as early as the third quarter. Because of the economic climate, we should see a downturn in capital expenditures, which will curtail customer net expansion plans. This situation will affect small vendors, and those that do not have money in the bank will be in serious trouble.

Howard Hecht
Consultant
Coopers & Lybrand
San Francisco

DO IT YOURSELF

Retail store chain tries self-serve T-1

Boscovs' tiny telecom team adds its own nodes.

BY PAUL KORZENIOWSKI
Senior Editor

READING, Pa. — After having a vendor install the first nodes on its T-1 backbone network, the telecommunications group at a department store chain here decided to cut costs by putting in additional nodes itself.

Boscovs Department Stores, Inc. installed its first T-1 line four years ago to link one of its stores to the company's data center in Reading. During the past few years, the network grew to support seven nodes, most of which were installed by Boscovs.

Jack Kerber, a communications analyst at the company, said there was a natural progression from relying on vendors to doing the work in-house.

Kerber and Russ Hopp, also a communications analyst, walked through the initial installations with support personnel from Datatel, Inc., the multiplexer supplier.

After watching the first few installations, the company saw advantages to installing its own T-1 equipment. One factor was reduced cost: Kerber estimated that the company saves $1,500 when it installs its own equipment.

Few scheduling problems

Another benefit is having fewer scheduling problems. "Sometimes, we have to install a node quickly and don't want to wait for Datatel's staff to be available," he said.

"Because the company is selling a fair amount of T-1 equipment, it wasn't always easy for Datatel to have its personnel at our site when we needed them."

Boscovs took on the installation responsibility, even though it has only a two-person communications staff.

"We probably have a much smaller communications staff than other companies," Kerber said. The staff was also short on data communications expertise.

Kerber worked for 23 years at NCR Corp., the Dayton, Ohio-based computer manufacturer, and Hopp had been employed in

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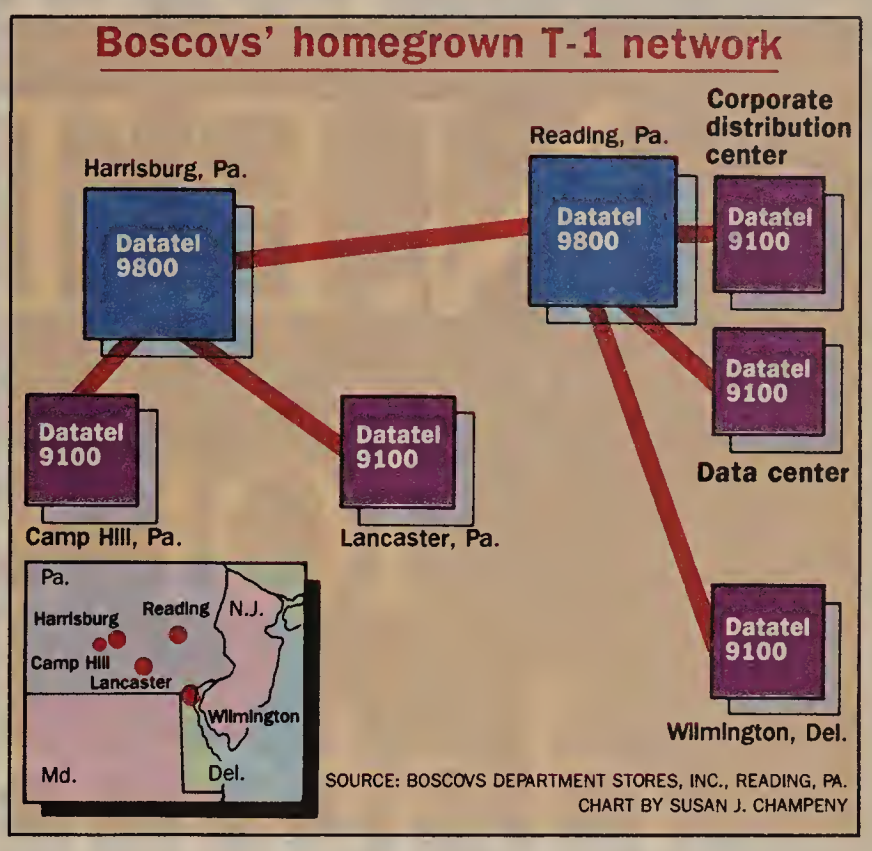

SOURCE: BOSCOVS DEPARTMENT STORES, INC., READING, PA.
CHART BY SUSAN J. CHAMPENY

ELECTRONIC DATA INTERCHANGE

Scanners, EDI benefit Zayre

BY BOB WALLACE
Senior Editor

FRAMINGHAM, Mass. — Zayre Corp. has kicked off a corporationwide product labeling and scanning program that will provide the retail chain with more accurate sales data and enable it to speed its product replenishment process.

Checkout clerks at a Zayre store here recently installed scanners to read industry standard Universal Product Code (UPC) labels. More than 360 Zayre stores and 740 T.J. Maxx, Hit or Miss and other stores owned by Zayre are being equipped with these systems.

In an effort to streamline its product ordering process further, Zayre has begun using electronic data interchange (EDI) to send and receive purchase orders from its largest suppliers. This technology enables corporations to electronically transmit documents such as purchase orders, shipment invoices and payments to their suppliers.

Transmission of documents electronically is faster than having a purchase order, for example, manually typed into a computer system and later sent through the postal system to its destination.

While EDI will speed the transaction transmission from Zayre stores to its suppliers, UPC scanning will speed the collection of product sales data within each store.

Jan Pope, director of advanced systems for Zayre, said that before the use of UPC and scanning devices, checkout clerks had to enter the product's six-digit stock number into the register manually.

Now, this information is automatically entered into the cash register when the product is passed over the scanner. This eliminates the possibility of checkout attendants entering incorrect product numbers.

Pope said the validity of product sales data produced by the old system was continually questioned. "We couldn't depend on our data," he said. "We were always wondering what the clerk may have done that would have screwed up the data."

Improved sales data

The combination of the UPC labeling and the product scanners have already provided several Zayre stores with improved sales data, Pope said. "You can depend on this information. You can make decisions based on this data. Before, your calculations were always plus or minus a certain percent," he said.

The data provided by the new labeling and scanning system can be analyzed quickly. Those who supply the stores with products have a clear idea

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NET MANAGEMENT SYSTEMS

Cincom, Netlink forge SNA bond

Develop capability to ease file exchange between IBM hosts.

BY PAUL KORZENIOWSKI
Senior Editor

CINCINNATI — Network management supplier Cincom Systems, Inc. and data communications manufacturer Netlink, Inc. recently joined forces to develop a capability allowing customers to exchange large files between IBM mainframes more easily.

The new capability will package the bulk file-transfer capabilities of Cincom's Net/Master software and the communications functions of Netlink's Interhost SNA Hub and enable users to move information between separate Systems Network Architecture networks. The two companies plan to market and provide technical support for Net/Master and Netlink jointly.

Net/Master is a modular network management system that performs a variety of functions including network problem determination, file transfer and security. Users can implement one or all of the functions.

Designed to manage SNA networks, Net/Master represents the only direct competition to IBM's NetView. Net/Master was developed by an Australian company, Software Developments Pty., Ltd., and was licensed to Cincom for sales in the U.S. The software runs under IBM's MVS, VM and DOS operating systems.

Net/Master's file-transfer facility enables customers to move information between hosts. It also automatically recovers and restarts a transmission if there is an error. The file-transfer component costs between $7,000 and $35,000, depending on the customer's computer and oper-

See page 16

Is there an N.E.T.™ solution for smaller, data networks?

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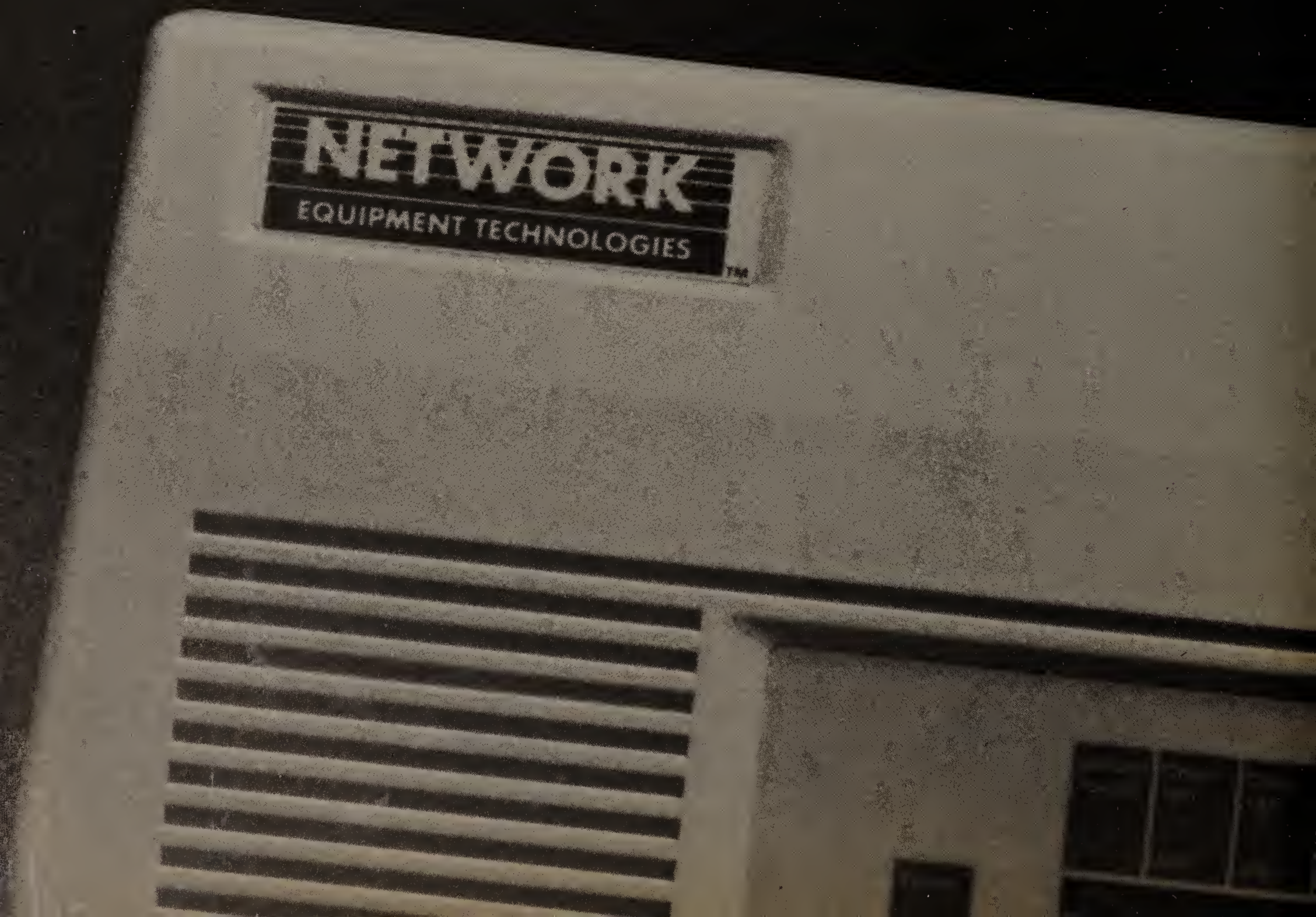
NETWORK EQUIPMENT TECHNOLOGIES™

ComDesign Data Communications Group

* *Datacommunications*, July, 1987. ComDesign is rated highest in overall performance among 16 manufacturers receiving five or more user responses.

The new SPX. Is it a multiplexer or a network?



Yes.

It's a powerful new multiplexer *and* a next-generation network processor.

Designed for users having multiple locations and various connectivity requirements. For the user who must accommodate different applications, speeds, protocols and transmission media. For the user who also looks to future change and growth.

All with maximum control and minimum costs. How does the SPX™ do it?

The SPX is a new multiplexer with a highly versatile hardware engine.

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The SPX is a sophisticated new network processor.

It connects multiple devices and sites into a single efficient network. With intelligent switching, dynamic routing, support for synchronous channels and a network management package.

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▶ *COMNET '88*

Concord debuts trio of wide-area net products

BY BOB BROWN
Staff Writer

WASHINGTON, D.C. — Concord Data Systems, Inc. unveiled three wide-area network products — a modem with data compression capabilities, a network management system and asynchronous testing software — at last week's Communication Networks '88 show here.

The CCITT V.32-compliant 296 Trellis modem provides faster data throughput via Microcom, Inc.'s Microcom Network Protocol Class 5 data compression.

The full-duplex modem transmits data at either 9.6K bit/sec or 4.8K bit/sec and can achieve speeds up to 19.2K bit/sec over standard dial-up lines, the company said. The unit gives asynchronous equipment users "eight times the data throughput of similarly featured 2,400 bit/sec error-checking modems at less than three times the price," said Ken Miller, chairman and chief technology officer at Marlborough, Mass.-based Concord.

The 296 Trellis modem, which can handle both synchronous and asynchronous data transmission, sells for $1,995.

The second product, the NetAccess 700, is a network management system that gives users single-port control for central-site and remote modems. Fully configured, the system gives network managers the capability to configure up to 152 central-site modems as well as an unlimited number of remote modems from an attached terminal or microcomputer, according to the company.

The new product consists of a Concord Data Systems RM15 rack that holds 15 Concord 224 Series II modems running at speeds of 2,400 bit/sec, 1,200 bit/sec and 300 bit/sec, and a control card and software that provide network management features.

> The modem gives users "eight times the data throughput of similarly featured error-checking modems," said Ken Miller, chairman at Concord.

The system performs unattended continuous polling of the installed modems and provides a continuous display through the terminal port of the status of all modems accessed, the company said.

Up to eight NetAccess 700 systems can be daisy-chained together, managing up to 120 central-site Series II modems, according to the company.

The NetAccess 700 can support an additional 32 modems by linking to four daisy-chained NetAccess 600 systems featuring eight modems apiece.

A fully configured NetAccess 700 system will cost about $12,000.

The company's third new product, the Asynchronous Performance Tester (APT), allows users to evaluate and compare performance of wide-area network data communications products such as high-speed modems, statistical multiplexers and X.25 devices. This gives users a method for matching asynchronous data communications products to their systems' specifications.

The APT measures and reports on round-trip character echo-delay time as well as maximum and passive throughput, characteristics of asynchronous modems that can affect the overall performance of data communications networks.

The throughput measurement allows a user to evaluate modem characteristics such as efficiency of implementation of an error-control protocol and effectiveness of data-compression implementations.

The APT is supplied on a single diskette and runs on IBM Personal Computer compatibles with at least 128K bytes of memory, one floppy disk drive, one or two RS-232 ports and MS-DOS Versions 2.0 or higher.

The price of the APT is set at $99.99.

Scanners, EDI benefit Zayre

continued from page 11

of which items are selling and which are still taking up shelf space.

If, for example, a jeans company supplies a Zayre store with 10 pairs of jeans and all of one size are sold in a day, the supplier receives this sales data. It can quickly replenish the store's supply of the popular-sized jeans.

This exchange of up-to-date sales information between Zayre and its numerous suppliers enables the retail chain to realize huge savings by reducing inventory at its large distribution centers. Now able to analyze product sales data quickly, Zayre's product buyers can identify buying trends. They can order products in anticipation of their customers' needs.

Just as in-store systems keep Zayre close to its customers, EDI keeps Zayre close to its many suppliers. Pope said the retail store chain is already using EDI to send and receive purchase orders and shipment invoices from several of its largest suppliers. Zayre hopes eventually to eliminate paper transactions between its stores and roughly 1,000 of its suppliers.

"We would much rather send purchase orders electronically than type them up manually, verify the information on each and then have them signed," Pope said. It takes three to four days to type up the order, verify its information and have it approved — all before it leaves the building, he said.

Cincom, Netlink forge SNA bond

continued from page 11

ating system. The component requires IBM's VTAM and Net/Master's Foundation Component.

Netlink's Interhost SNA Hub establishes sessions and manages sessions conducted between IBM hosts. The product resembles IBM's Systems Network Interconnect, a gateway that links hosts on different SNA networks. Interhost SNA Hub mimics an IBM cluster controller and enables customers to access as many as seven IBM mainframes.

The product includes RS-232 connections, for transmissions operating at 19.2K bit/sec, or V.35 cards for 64K bit/sec connections. Customers can use leased lines or dial-up connections to access different hosts. Prices for Interhost SNA Hub start at $17,000.

The two companies targeted the rapidly growing electronic data interchange (EDI) market as a hot area for file-transfer capabilities. EDI enables customers to exchange business information electronically, rather than manually.

For example, a supplier's mainframe could use a dial-up connection to Interhost SNA to access a customer's mainframe. The supplier could transmit information about all equipment recently shipped to the customer, which could then store the information in an inventory data base.

Store chain tries self-serve T-1

continued from page 11

a number of data processing positions. "Both of us liked working with the nuts and bolts of computer systems and were interested in doing the same with data communications," Kerber said.

Initially, the twosome made a typical mistake, trusting their own judgment rather than others' experience.

"We ran into trouble when we thought we found a few shortcuts," Kerber said. "We aren't nearly as inventive now as we used to be and are satisfied to simply follow the procedures from Datatel installation manuals."

> "We install the T-1 equipment after the store closes," said Jack Kerber, a communications analyst at Boscovs. "We go in about 10 at night and plan to be out by midnight."

The first step, having the carrier install the T-1 line, is usually the most difficult part of any installation. Bureacratic problems, rather than technical issues, are the most common stumbling block. For instance, Hopp reported that one carrier had trouble receiving a right-of-way so it could install a T-1 line in a mall. "The carrier had trouble contacting the mall manager," Hopp said.

Also, carriers often have trouble coordinating their work with other carriers. "When we put in a service call, we receive a response immediately," Hopp said. "However, there often is a delay if the call requires more than one carrier's service department."

In another case, Boscovs had trouble having the carrier supply the power on a T-1 line. "We had power on one end of the line but not on the other," Hopp said.

Once the carriers have installed a T-1 line, Boscovs uses the diagnostic capabilities of its Datatel Customer Service Units to test the link. The tests provide useful information but cannot pinpoint a problem. "We have to rely on the carrier's expertise," Hopp said. "Sometimes, it is reluctant to send a technician to our location. There were occasions when we delayed our installation for a few days because the carrier did not send someone to our location."

Once the line has been tested, Boscovs' duo can hook Datatel multiplexers to voice equipment, such as private branch exchanges, and data communications equipment like a cluster controller, in two hours or less. "We install the T-1 equipment after the store closes," Kerber said. "We go in about 10 o'clock at night and plan to be out by midnight." He said there was only one instance when the two had to work more than a few hours.

Because the company's T-1 network is rapidly expanding, Kerber and Hopp have been working more nights lately. "We used to add a node once every four to six weeks," Kerber said. "Now, our schedule calls for a new node every one or two weeks."

One reason for the growth is the economics of T-1. Typically, the cost of 10 to 12 tie lines is comparable to the cost of one T-1 line. "We can easily justify a T-1 line because we have a number of voice lines running from each store," Hopp said. "Also, we have redundant data lines running to each location."

Despite the rapid growth, there are no plans to add to the twosome. "We don't have any plans right now to add to the staff," Kerber said.

He said the company traditionally promotes from within.

"We have one woman who has been helping us during the installations," he said. "She started as a clerical worker and would be a logical choice if we were to add another person. But for the moment, the staff will remain just Russ and me."

TELECOM TRENDS

The wide world of communications

Northern Telecom, Inc.'s National SL-1 Users Association has added chapters in Canada and Panama. As a result, the group's name has been changed to reflect its membership. The International SL-1 Users Association (ISLUA) will meet June 7 to 10 in Nashville. For additional information, contact the ISLUA at (216) 425-8903.

System 75 Users Group fact sheet

Founded:	October 1987
Status:	Independent; created as a nonprofit corporation in the state of Michigan.
Charter:	To obtain an effective working relationship with AT&T as a combined group and to aid member users in problem recognition and resolution.
Current membership:	50 companies, including E.I. DuPont de Nemours & Co., Unisys Corp., Michigan Department of Labor and Electronic Data Systems Corp.
First annual conference:	Jan. 21, 1987; attendance: 100
Current president:	Paul Rogers, telecommunications supervisor, Citizens Insurance Co. of America, Howell, Mich.

SOURCE: SYSTEM 75 USERS GROUP, LIVONIA, MICH.

USERS GROUPS

System 75 users convene

New group vows to obtain improved AT&T support.

BY BOB WALLACE
Senior Editor

LIVONIA, Mich. — At its first annual meeting, held recently, the independent System 75 Users Group reaffirmed its commitment to build the group's membership and to continue pressing AT&T for improved support.

The size of this users group will likely balloon in the next year because AT&T has not yet formed a competing group. One member, Rick Stanbridge, vice-president of Canada Lease of America, Ltd.'s telecommunications division, said the users group may eventually boast up to 1,000 individual members.

Formed in October 1987, the organization represents System 75 users from many Midwestern states. Twenty-seven companies have already joined the users group. Member companies include E.I. DuPont de Nemours & Co., Unisys Corp., Electronic Data Systems Corp. and the Michigan Department of Labor.

Voice for small, medium-sized users

Paul Rogers, president of the System 75 Users Group and telecommunications supervisor for Citizens Insurance Co. of America, explained why the group was founded. "System 75 users tend to be medium- and small-sized businesses, many of which don't have full-time telecommunications managers," he said.

"At the users group meetings, they can draw from the experiences of other System 75 users, instead of going it alone," Rogers explained. "These users also often feel frustrated trying to get solutions to problems from AT&T." One of the users group officers' top priorities will be putting group members in touch with the AT&T people capable of answering their questions.

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VENDOR COOPERATION

Marketing team banks on DEC-Rockwell link

Software blends power of VAX and Galaxy ACD.

BY BOB WALLACE
Senior Editor

MEMPHIS, Tenn. — Seven Oaks Direct, Inc., a 325-agent telemarketing service center, will begin using an advanced voice/data application next week that harnesses the combined power of its computer and telephone switch.

Seven Oaks, based here, has worked closely with Digital Equipment Corp. and Rockwell Telecommunications, Inc. senior technicians, who provided the vendor-specific information the firm needed to establish a communications link between its DEC VAX and the Rockwell Galaxy automatic call distributor (ACD).

Steve May, Seven Oaks' chief executive officer, said use of the application will boost the firm's overall productivity by 23% and slash its monthly telecommunications bill by $20,000 to $30,000.

> "By using the new system, we can give [our customers] a much better idea of who is buying their products, what ads they are responding to and what cities they are calling from," said Steve May, Seven Oaks' CEO.

With help from DEC and Rockwell, Seven Oaks wrote custom software that enables a MiniVAX sitting between the ACD and the VAX to pass data back and forth. The ACD receives a four-digit Dialed Number Identification Service (DNIS) for the 800 line used by the customer. The ACD passes the digits to the MiniVAX, which pulls product description data from the VAX. The call and the data are then passed simultaneously to the agent.

In conjunction with a variety of manufacturers, Seven Oaks sells products ranging from record albums to exercise equipment. When Seven Oaks agents are not fielding incoming calls, they place sales calls or perform customer surveys for clients.

The telemarketing firm also sells demographic customer data to its client manufacturers. Use of the ACD-computer telemarketing system will enable Seven Oaks to provide its customers with much more useful data than was available in the past. May refers to the service as "media sourcing."

"Our customers need specific data to help them decide how to market their products better," May said. "By using the new system, we can give them a much better idea of who is buying their products, what ads they are responding to and what cities they are calling from."

Prior to the DEC-Rockwell alliance, Seven Oaks could not offer its customers complete buyer information. "We were handcuffed as far as what new or improved services we could offer our clients," May said. "Now we will offer them services they could only dream of before."

The DEC-Rockwell link allows Seven Oaks agents to provide customized answering. For example, a sales agent, armed with a CRT full of product data on a record album being sold by the firm, greets an interested caller by saying, "Thank you for calling about the record album."

In the past, there was no linkage between the ACD and the company's VAX. A Seven Oaks agent provided the caller a generic greeting and then had to ask a series of questions to determine which product the customer wanted. Once the agent did this, he would access the VAX with his terminal and call up the product data.

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TELECOM TIDBITS

Intecom, Inc. said recently it sold an Integrated Business Exchange S/80 to **Contel Business Networks** for installation as part of a voice/data network being constructed for **Lawrence Berkeley Laboratory** in Berkeley, Calif.

Contel Business Networks designed the facility's network, which will consist of a five-node switching system and a fiber-optic cable backbone, as well as new building wiring.

Intecom claimed its IBX digital private branch exchange will replace the laboratory's Centrex service as well as several data switches.

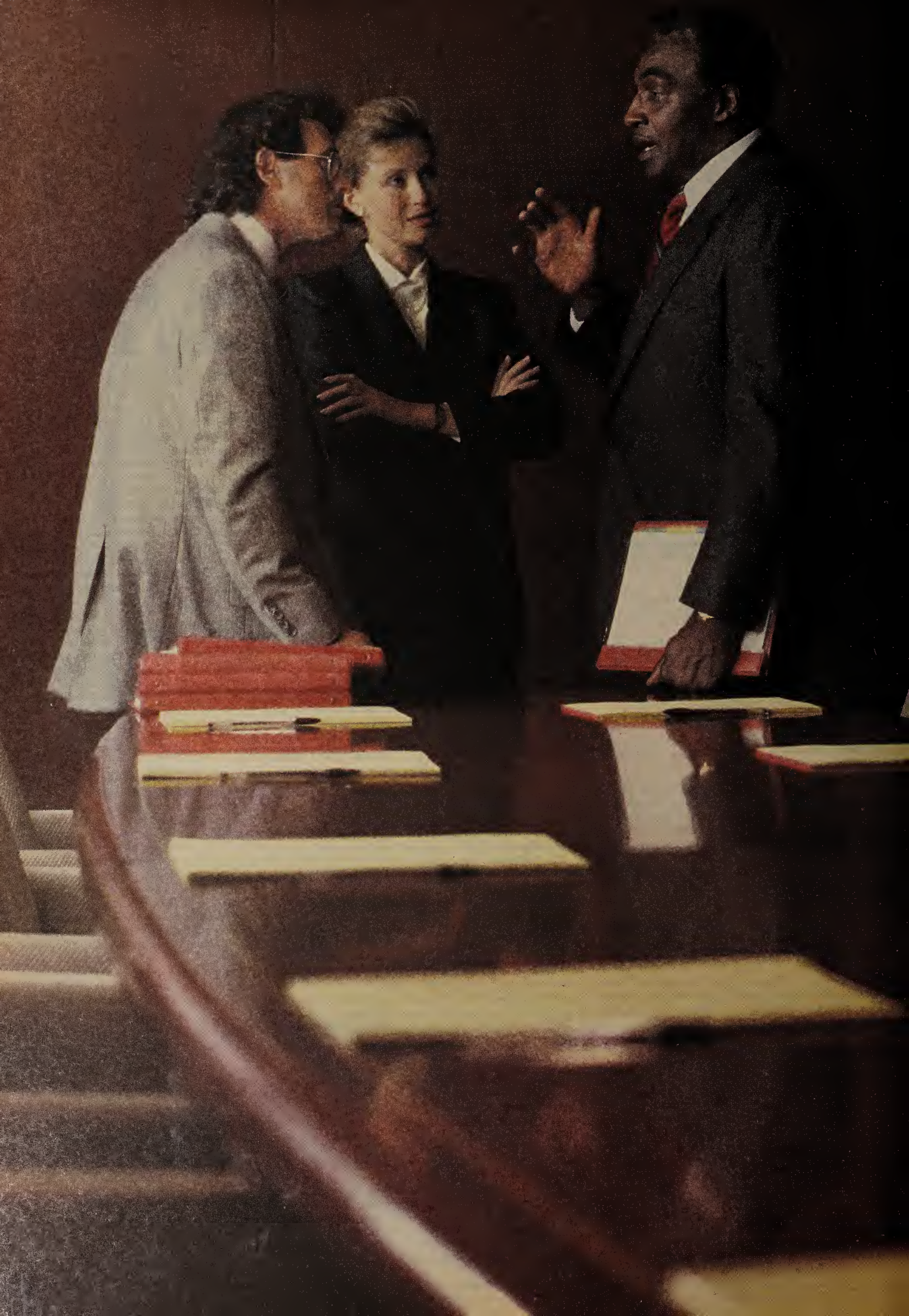
The Intecom switch will support roughly 3,500 analog and digital telephones and will be equipped to handle 1,950 data ports.

The 50-building research complex is one of three national laboratories operated for the U.S. Department of Energy by the University of California.

The laboratory will use a wide variety of IBX management features.

US Sprint Communications Co. last week reduced rates by 16.27% for its **Advanced WATS Plus** service for calls made within the state of Texas. The long-distance carrier said Advanced WATS Plus is typically used by companies with WATS billings of up to 700 hours per month.

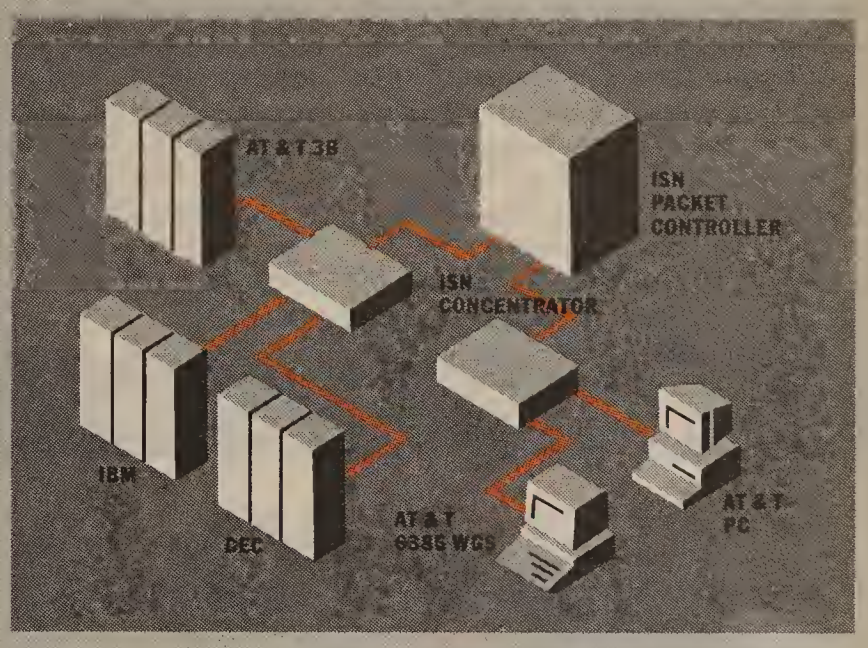
The country's third largest long-distance carrier, which now offers point-to-point T-1 service, operates a nationwide network comprising fiber-optic cable and microwave.



"Our Executive Committee doesn't have a clue how fast computers change.

The Executive Committee people we spoke to off-line don't realize that they're placing a long-term bet on the computer network we choose today. They look at computers in their own shop and figure networks are just the wires that connect them. So before Gail gets into AT&T's ISN, I'll get them thinking. Looking across the table at the guy who's got a DEC® or an IBM system and saying 'Hey, we need a network that can work with just about anybody's boxes. And still be here after some of those boxes are history.' Then Gail presents ISN, chapter and verse. Finally, you get up and remind them of what AT&T's done for us. Our committee may not know computer networks, but they sure know

AT&T comes through."



The AT&T Information Systems Network

AT&T's ISN connects more computer environments, in more ways, with greater transparency than any network available today.

Gateways to other vendors: Async hosts, IBM[1] 3270, ETHERNET[2] Bridging, XNS[2], TCP/IP, DECnet[3] protocols.

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AT&T
The right choice.

System 75 users convene

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The System 75 Users Group will hold four general meetings each year. Any user with an AT&T System 75 private branch exchange may join the group. According to Stanbridge, the group charges members $200 annually. That fee covers dues and allows two people from each member company to attend each meeting.

The user organization decided to operate as an independent entity, instead of establishing any exclusive ties to AT&T. "This way, we have the freedom to invite vendors that make equipment for the System 75 to attend our meetings and demonstrate their products," Stanbridge explained.

Freedom of speech

The users group can also control the number of AT&T officials that attend the meetings, he said. "We want to make certain that user members have the opportunity to speak freely with one another," Stanbridge said. "We don't want them to be afraid to speak.

"We don't want our meetings to reach the point where only half of the attendees are users and the other half are AT&T officials and account team people," he said, referring to the collocated AT&T System 85 and AT&T Electronic Tandem Network users meet in St. Louis, Mo., last fall.

AT&T did, however, send eight speakers to the recent meeting. The list of those who addressed the membership included Cal Burley, a product specialist with AT&T in Chicago, and Charles Pressley, a senior staff manager with AT&T in Itasca, Ill. AT&T also offered the group use of company facilities for future meetings.

Election of officers

The users group officers were elected at the Jan. 21 meeting. Paul Rogers, telecommunications supervisor with Citizens Insurance Co. of America, was voted president. Deborah Henkel, vice-president and general manager with AmeriCenters, Inc., was elected vice-president of the group.

Jo Anne Tappan, supervisor of administrative services for American Community Insurance Co., was elected secretary. Mike Frazier, communications specialist with Auto Owners Insurance Co.'s computer operations division, was elected treasurer. Dan Taylor, technical support and information systems manager for ADP's automated claims services group, will serve as the System 75 Users Group's AT&T liaison.

For additional information on the System 75 Users Group, contact Rick Stanbridge at (313) 433-1930.

▶ *MARKET STUDY*

PBX sales hit plateau

BY BOB BROWN
Staff Writer

MARLBOROUGH, Mass. — Private branch exchange market shipments will remain virtually flat overall for the next five years, but some niche markets will fare better, according to a recent study by The Market Information Center, Inc., a market research firm based here.

Voice PBX shipment growth is expected at about 2%, compounded annually through 1992, mainly because so many companies already have basic PBX needs fulfilled, said Barry Gilbert, a Market Information Center spokesman. The extended life of PBX systems cuts down on the need for new systems, Gilbert said. Users are more likely to enhance their PBX systems than to get new ones, he added.

Small third-party vendors are expected to snatch the opportunity to join this market by pitching such enhanced features as voice mail and automatic call distribution, the study said.

The total PBX system value in 1987 was $5.3 billion, which included shipments and upgrades to the existing installed base.

The best market opportunities are expected to be in vertical areas that offer more potential for replacements and enhancements. The growth rate of business services, for example, will double that of the market as a whole, the study said. Higher growth in this area can be attributed, in part, to the continuing migration to a services economy throughout the U.S. This migration has fostered a requirement for improved voice networking services, the study found.

The wholesale and retail sectors will also demonstrate better than average growth — about 3% annually — than the rest of the market.

The largest sales growth will be in the under 100-line segment, which is the largest U.S. segment by far. This lower end PBX market is fiercely competitive and is likely to experience some consolidation via mergers and acquisitions.

The patterns of PBX consumption forecasted by the study are expected to hold true for most U.S. regions as defined by the regional Bell holding company sectors. But growth is expected to be greater for US West, Inc., Southwestern Bell Corp., Pacific Telesis Group and BellSouth Corp. than for Nynex Corp., Ameritech and Bell Atlantic Corp.

Team banks on DEC-Rockwell link

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The Seven Oaks-DEC-Rockwell undertaking will pay dividends for all those who participated in the effort. May speculated that the knowledge DEC garnered from the project will enable it to accelerate the introduction of its Computer-Integrated Telephony (CIT) program.

Under CIT, DEC will work with private branch exchange vendors to develop software that links the switches with its array of computers. Several switch makers have already joined the program.

DEC announced CIT at the Telecom '87 conference in Geneva last October.

Bob Buffington, ACD product line manager for Rockwell, said that his company had also learned much from the Seven Oaks project. Buffington said word of the service center's system will boost user interest in Rockwell products. "We will have another user telling companies that we worked closely with them to create this application," he said.

May praised both vendors for their willingness to work with each other to build the advanced application. He said his company's former ACD vendor, Northern Telecom, Inc., wanted no part of the project.

Unanswered pleas

According to May, Seven Oaks' initial pleas for assistance in the creation of the application fell on deaf ears at Northern Telecom, which refused to provide the proprietary technical information needed to make the SL-1 work with Seven Oaks' DEC computer.

As a result, Seven Oaks purchased a Galaxy ACD to replace its Northern Telecom switch, which had only been in use for six months.

"We couldn't get [Northern Telecom] to work with us," May recalled. "I think they suspected that we were going to build telecommunications systems that we would turn around and sell.

"'But when [Northern Telecom] people came down here," he said, "they saw what we wanted. We then got a bunch of promises. They said, 'We will have what you want in October and November. We can make you a beta-test user.' It never happened. We had discussions with Northern Telecom for over five months."

After concluding discussions with Northern Telecom, May approached six ACD vendors and explained what proprietary product information would be needed for the project.

"When we read the proposals, we found that there were only two companies capable of providing what we needed to create the application," he said. "But the only vendor who could do it at the time we wanted to begin work was Rockwell."

May said the project has attracted professors, college students and several independent consultants, in addition to top technicians from DEC and Rockwell.

LOCAL NETWORKING

3Com ships Mac II E-net adapter

3Com Corp. has begun shipping an Ethernet adapter for Apple Computer, Inc.'s Macintosh II, enabling the computer to operate on a 10M bit/sec Ethernet network. Called EtherLink/NB (NuBus), the product is available immediately for $595.

NETWORKING DEFICIENCIES

Apple users find a worm

Recent success of Mac highlights communications shortfall.

BY MARY PETROSKY
Senior Correspondent, West Coast

Apple Computer, Inc.'s success in selling its Macintosh computers to corporate America has uncovered a weak spot in the company's technology: communications.

The company's recent joint development agreement with Digital Equipment Corp. highlighted this weakness. One of Apple's key problems, said third-party developers, is that it has not evolved its AppleTalk networking protocols rapidly enough to keep up with users' communications needs.

The most glaring problem is a lack of network diagnostic and management tools. Standards for asynchronous dial-up communications and protocols for communications between network bridges are also needed.

However, the situation isn't all bad. Apple-specified standards, such as the Apple Filing Protocol and Printer Access Protocol, have made it easy for developers to build products that can interoperate on a network. "That mix-and-match capability is what makes AppleTalk so easy to use," said Kee Nethery, technical liaison for Farallon Computing in Berkeley, Calif. Without Apple-developed standards, "mix-and-match ease of installation goes out the window," Nethery said.

Apple's networking guru and manager of network systems development, Gursharan Sidhu, acknowledged that the developers' criticisms are valid. Recognizing that Apple "needed to be a full-fledged networking provider," the company tripled its networking staff last year, Sidhu said.

Apple is now working on solutions to many of the problems cited by developers, he said. In the meantime, many developers are moving ahead with proprietary solutions and adopting de facto standards. Although there is a great deal of cooperation among the developers — many of whom belong to the AppleTalk Developers Association — incompatibilities among their products still crop up.

"There is no doubt that AppleTalk protocol development has not moved at the rate those of us in the trenches would like to see," said Alex Gernert, marketing director for Tri-Data Systems, Inc. in Sunnyvale, Calif.

Tri-Data ran into a problem when developing its 3270 gateway for AppleTalk. For want of a data stream protocol from Apple, Tri-Data developed its own.

Now that an Apple solution is available, Gernert sees no reason to adopt it. "It was so late in coming and I have such a large installed base, I see no reason to change," Gernert said.

Farallon's Nethery echoed Ger-

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COMNET '88

TRW beefs up LAN product line

BY JIM BROWN
New Products Editor

WASHINGTON, D.C. — TRW, Inc.'s Information Networks Division used the Communication Networks '88 show here last week to bolster its local-area network management product line.

The company also introduced a local net bridge and IBM Personal Computer-based Transmission Control Protocol/Internet Protocol software.

All the products work with IEEE 802.3-compatible networks, including Ethernets, that support TCP/IP protocols or TRW's OS Connection networking software.

TRW's NM 2000 network management software runs on a Sun Microsystems, Inc. workstation. The menu-driven package enables a network manager to configure remote network nodes as well as collect network-usage data from TRW's Advanced Connector Unit (ACU) 2000, also announced last week. It can work with two other network management products announced last week, LanStat and LanLoader.

NM 2000 supports network alarm monitoring, network performance monitoring and network status reporting. The $19,995 package, which includes the Sun workstation, also comes with a data base that stores network configuration and individual user profiles, a network equipment inventory and a network hardware repair history.

LanStat is a self-contained unit that connects to the network. By capturing mirror images of data packets, LanStat is able to track how many data packets are flowing across the network. Those mirror packets are stored in memory.

When used in stand-alone mode, a Digital Equipment Corp. VT-100-compatible terminal linked to LanStat via RS-232 can be used to display those packets and control LanStat operations. The NM 2000 system is also capable of polling and retrieving the data stored in multiple LanStat units at user-defined intervals.

In Extended Statistics mode, LanStat collects data detailing peak network traffic and traffic during user-specified times and provides a daily traffic report.

LanStat can also generate traffic to be sent over the network to a specific device in order to measure that device's performance. It can create non-Ethernet packets in order to determine the type of packet that will cause network devices or entire networks to fail.

The $2,995 LanStat is equipped with an Ethernet adapter. It also comes with either a thin-wire Ethernet adapter, AT&T Starlan adapter or a TRW broadband modem operating at up to 10M bit/sec.

TRW's LanLoader is a server capable of rebooting an entire network following a power fluctuation. The unit uses a TRW proprietary download protocol supported by TRW's ACU 2000 to download network software to an entire Ethernet backbone network.

Based on a Motorola, Inc. 68000 series microprocessor, the unit holds the network software in 256K bytes of nonvolatile random-access memory. The unit is controlled by 512K bytes of operating RAM. It features an RS-232 port that enables an IBM Personal Computer or NM 2000 workstation to access the unit and issue commands.

LanLoader uses parallel communications to download network software to as many as 40,000 devices supported by multiple Ethernets linked to a backbone Ethernet, while similar units on the market perform the task with serial communications. The unit ranges

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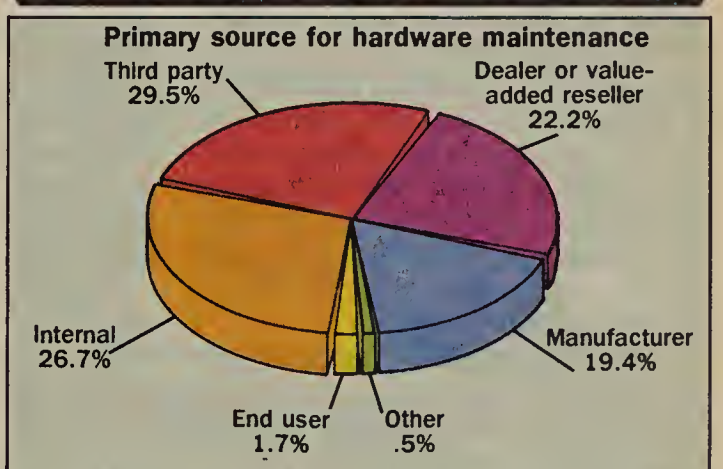
Who maintains the hardware?



In a recent study, The Ledgeway Group found that computer dealers and value-added resellers account for approximately one-half of low-end product sales (including networks) to the Fortune 1,000, but only 22% of these companies use resellers for hardware maintenance.

SOURCE: THE LEDGEWAY GROUP, INC., LEXINGTON, MASS.

NETWORK NOTES

In a move to expand the marketing of its products to vertical-market value-added resellers, **3Com Corp.** announced last week it has signed a contract with a major U.S. distributor and established a program to allow some of its resellers to act as dealer/distributors.

3Com signed a one-year, renewable agreement with Softsel Computer Products, Inc. of Inglewood, Calif., which will distribute 3Com personal computer networking products to vertical-market value-added resellers in the U.S.

In addition, 3Com unveiled a new program for current 3Com resellers that allows them to serve as an additional indirect source of 3Com products for small, vertical-market value-added resellers.

Touch Communications, Inc. of Scotts Valley, Calif., recently announced at the Infonetics Desktop Communications Conference the first Open Systems Interconnect (OSI) product for the Apple Computer, Inc. Macintosh family of personal computers. The Touch OSI Macintosh

See **Network Notes** page 22

Network Notes from page 21
Developers Kit enables software developers to implement network-based applications for the Macintosh using industry-standard OSI protocols, the company said.

The Touch OSI Macintosh Developer's Kit is Touch's initial Macintosh offering. Last May, Apple made a strategic investment in Touch to provide OSI networking software products for the Macintosh product family.

The Touch OSI Macintosh Developer's Kit is expected to be available this May. The kit is priced at $545, which includes license, media and the Programmer's Reference Manual.

Micom-Interlan, Inc., a Boxborough, Mass.-based provider of local-area networking products, and **SynOptics Communications, Inc.** in Mountain View, Calif., recently announced a joint agreement to market and develop local-area network products. Both companies will add critical media distribution components and local network interface boards to existing product lines. Under the terms of the agreement, Micom-Interlan becomes the first local net company to acquire development rights to SynOptics' 10M-bit chip technology.

Micom-Interlan will resell SynOptics LattisNet, a facilitywide wiring system that allows IEEE 802.3 Ethernet technology to be implemented using unshielded twisted-pair wire. SynOptics will offer Micom-Interlan NP-Series Intelligent Protocol Processors and NI-Series Data Link Controllers.

Synchronous Data Link Control and X.25 LAN Gateways for the IBM Personal System/2 Micro Channel bus have been introduced by **Icot Network Systems, Inc. (INS).** The 3270 interfaces connect networked Personal System/2s and Personal Computers through a Personal System/2 Model 50, 60 or 80 to the Systems Network Architecture host environment.

Each INS gateway supports up to 32 logical unit sessions on a Network Basic I/O System-compliant local net. Up to 10 gateways of each type, SDLC or X.25, may be installed on a single local-area net.

The 68B09 microprocessor- and 68B54 data link controller-based gateways are designed to be self-sufficient, handling their own communications and processing functions, minimizing Personal System/2 overhead and increasing performance.

The INS SDLC LAN Gateway appears to the host as a 3274-51C cluster controller and supports two 3278/79 terminal sessions and one 3287 host-addressable printer-emulation session per workstation. Line speeds up to 19.2K bit/sec over leased, switched or multidrop lines are supported.

The X.25 LAN Gateway adheres to CCITT 1976, 1980 and 1984 recommendations.

Scheduled to ship immediately, SDLC and X.25 LAN Gateway pricing ranges from $1,995 for eight-logical unit support up to $3,995 for 32-logical unit support.

10net Communications, Inc. recently announced the signing of a Source License Agreement with Network Research Corp. (NRC) for NRC's Fusion Network Software. The Fusion Network Software will be ported on the 10NET local-area network. Protocols that are supported by Fusion Network Software include Xerox Network Systems, Network Basic I/O System, Network File System and Transmission Control Protocol/Internet Protocol.

The addition of TCP/IP will enable 10NET users to connect to other systems such as VAX/VMS and Unix. 10NET users will also have the ability to gateway into other network systems such as Ethernet, fiber-optic and token ring.

TRW beefs up LAN product line

continued from page 21
in price from $1,995 to $2,095.

TRW's ACU 2000 is a Motorola 68000 microprocessor-based communications server enabling up to four devices to share a single link to an Ethernet. Each of the ports can be configured to support different network protocols.

That configuration information as well as network-usage statistics for each port are retained in 512K bytes of RAM.

The ACU 2000 communicates with devices connected to it at speeds up to 19.2K bit/sec. It is supplied with an Ethernet adapter as well as either a thin-wire Ethernet adapter, AT&T Starlan adapter or a TRW broadband modem operating at up to 10M bit/sec. A two-port ACU 2000 is $1,050.

TRW's NB 2000 Network Bridge provides a link between IEEE 802.3-compatible local nets. An NB 2000 linked to a backbone Ethernet is able to link to four sub-Ethernets. Capable of transmitting 5,000 packets a second, the unit will support TCP/IP, Digital Equipment Corp. DECnet or International Standards Organization Open Systems Interconnect-compatible network protocols.

The NB 2000 costs $5,395 and is capable of determining which devices are local and which are remote. It will support adapter boards that link to 10M bit/sec twisted-pair wired networks as well as a link between remote networks via a T-1 line.

The NM 2000 network management software is used to configure and control the NB 2000 bridge. NM 2000 can also access such NB 2000 stored network-usage statistics as the number of data packets transmitted by the bridge and the number of data packets the bridge retransmitted because of errors.

Lastly, TRW announced the PC 2000, which consists of an adapter board and software that enables IBM Personal Computers supporting MS-DOS, DOS Z-100 or Xenix operating systems to implement TCP/IP. The software supports TCP/IP's File Transfer Protocol, Telnet Virtual Terminal Protocol and DEC VT-100 terminal-emulation capabilities. It also includes an interface to TCP/IP's Simple Mail Transfer Protocol.

In addition to supporting an interface to software supporting IBM's Network Basic I/O System, the PC 2000 product is also capable of running TRW's networking software called OS Connection.

Pricing for the PC 2000 board and software ranges from $495 to $670. TRW's Information Networks Division is located at 23800 Hawthorne Blvd., Torrance, Calif. 90505, or call (213) 373-9161.

Apple users find a worm

continued from page 21
nert. "Xerox blew it because they lost control of Ethernet, and it looks like Apple is doing the same thing," Nethery said. He points to the current lack of standards for asynchronous communications over AppleTalk as an example.

"There's a standard way to do it, but it's not Apple's," Nethery said. Several years ago, Dartmouth University in Hanover, N.H., developed an asynchronous version of AppleTalk and placed it in the public domain. "There are a lot of limitations to this hobbyist's implementation," so developers are creating their own — which will likely result in incompatibilities, Nethery said.

Solana Electronics in San Diego is one vendor that has developed its own, more sophisticated asynchronous communications methods for AppleTalk. Because of the lack of standardization in this arena, Solana President David Crellan said vendors of asynchronous products "would like to have someone, preferably independent, try out all the products in an intermixed environment."

Sidhu said there are so many asynchronous protocol standards that evaluating them all and picking one is difficult. Performance and security must be addressed as well, and Apple is tackling these two issues first, Sidhu said. "The async standard is more difficult to solve," he said, adding that he would welcome input from any developer.

"I don't want anyone to think we're stonewalling or ignoring this issue," he said.

The one area in which third-party developers dare not tread without Apple-developed standards is network management. "We need some network maintenance supported, but I'm not about to invent things and then have Apple replace them," noted Tri-Data's Gernert. The cost of developing net management tools is too high for third parties to bear, he added. "It's really an Apple call."

Farallon was responsible for setting up the more than 100-node AppleTalk network at the recent MacWorld Exposition in San Francisco, and network management was a real issue, Nethery said. The network was designed so that no booth was dependent on any other booth, allowing Nethery to isolate any problem booths.

Sidhu said that, over the past year, his group has been gathering input from developers and users concerning what Apple's network management system should cover. An interim diagnostic tool is now in beta testing. In addition, a prototype of a full net management system has been shown to DEC and a few large users, Sidhu said.

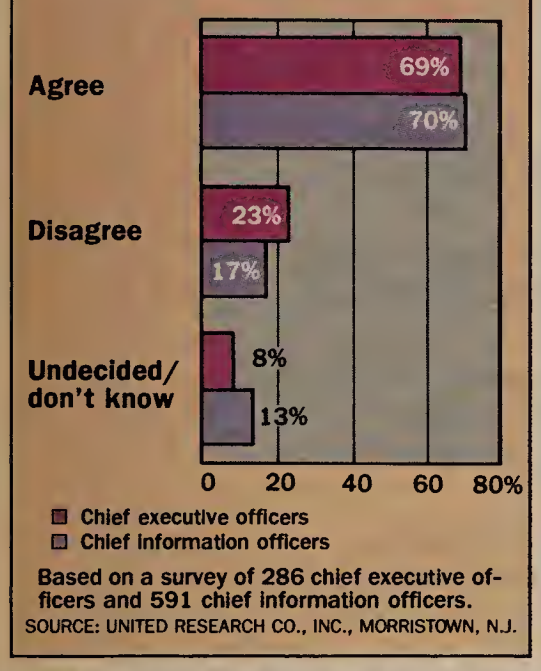
Presumably, Apple can plug the holes in AppleTalk before third parties become too entrenched with their own solutions — and before the corporate users' newfound love for the Macintosh is cut off by network snafus.

COMMUNICATIONS MANAGER

CIOs caught out of focus

In a recent *Business Week*/United Research Co., Inc. study, half of the chief executive officers surveyed said they wish their chief information officers would "concentrate on making information systems more business-focused, instead of trying to ensure that what the company has is technically state of the art."

Success and strategic information systems



DIALOGUE

Do you think vendors can meet user needs better by teaming up with other companies to offer complete networks? Or do you think that is marketing hype?

"I think that it's mostly hype. The assumption is that they are experts in their fields and that together they can provide a broader solution. It may be true in their separate environments, but I don't think it necessarily follows.

Dean Miller
Manager of information systems
Goodyear Tire & Rubber Co.
General Products Division
Lincoln, Neb.

"I feel they can present better solutions by teaming up. They can complement one another's products and present a full solution, rather than a partial solution that leaves the buyer to come up with a full solution.

William Helmstetter
Vice-president
Communications and hardware
Connecticut National Bank
Hartford, Conn.

"For the most part, they don't meet users' needs better. Usually, the vendors that team up are not the companies I would choose. I'd rather make my own choices. For instance, MCI and IBM have been getting together lately, but I would rather choose AT&T. The teaming relationship is good only if the vendors that team up would be the ones I'd choose.

Debra Kristopson
Director of MIS
Nestle Enterprises, Inc.
Cleveland, Ohio

NORTH AMERICAN ISDN USERS' FORUM

Group gathers user views

Members strive for more interoperable ISDN applications.

BY BOB BROWN
Staff Writer

GAITHERSBURG, Md. — Users aiming to get more than their two cents worth in before Integrated Services Digital Network standards come out will team up this week with vendors to form an organization dedicated to collecting user input.

Users and vendors, hoping to work out some of their many differences over ISDN, plan to sign the charter for the North American ISDN Users' Forum at a National Bureau of Standards (NBS)-Open Systems Interconnect dinner here.

The group's mission, as stated in its charter, is "to create a strong user voice in the implementation of ISDN and ISDN applications and to ensure that the emerging ISDN meets users' application needs."

The fledgling group will have its first open meeting June 8 through 10 in Atlantic City, N.J., following the Association of Data Communications Users' national conference, said W. Edward Hodgson, computer and communications manager for Westinghouse Elevator Co. in Morristown, N.J.

The organization will be divided into two main parts: the ISDN User Workshop and the ISDN Implementors Workshop. Members of the user workshop will present the implementors group — made up mostly of vendors — with applications users need most. The vendor group will provide technical advice and consultation on how to implement these applications and ensure their interoperability.

"There has been an obvious lack of user involvement up to now," said Richard Stephenson, head of the implementors group and director of advanced technology at Southwestern Bell Telephone Co. in St. Louis, Mo. "This organization makes sense for users, potential users and vendors."

The NBS, which began pushing for an ISDN users group last year by soliciting industry contacts, said, "Encouraging broad industry and user participation is the most effective way to ensure that ISDN products and services are available to meet user requirements in a timely manner."

The new group will attempt to persuade vendors to make interoperable applications instead of making versions dedicated solely to their base customers, said Hodgson, who will act as chairman of the new group's user workshop.

"Vendors have had the upper hand in standards committees for too long," Hodgson said. "When vendors are in control, not much gets done, or it gets done wrong."

Typical standards committees are stacked with vendor representatives "who are engineers taken right out of college with no real world experience," Hodgson said. "They don't defend users. They defend their egos."

Despite such talk, five of the six founding members of the forum are vendors. Westinghouse Elevator is the only user in the founding group, which includes Nynex Corp., Bell Atlantic Corp., Southwestern Bell Telephone Co., Bell Communications Research, Inc. and Ameritech Services.

Vendors are "excited about the organization" because they realize that "the users have all the money," Stephenson said.

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GUIDELINES

JOE CHEW

Managers beware of execubabble

In the column "Technobabble as an art form," (*NW*, Jan. 11) the author unleashed a potentially awesome force for hastening progress — or impeding it. Leveraging success terminology to implement verbiage-enhanced communication strategies is a nontrivial concept.

"Powerful ideas swaddled in technobabble have little chance of adoption," the author writes. Agreed, in spades. But one could say the same for ideas swaddled in execubabble.

Take the sources the author cites for his ostensibly desirable "corporate watchwords" — official correspondence from senior levels of an organization, including speeches and annual reports.

Watchwords? Buzzwords is more like it.

Official corporate communications of any kind are veritable hives of bee-in-a-bottle terms that make a nice buzz but get nowhere. Often what is conveyed is not a sense of "what is currently important to the organization" but a sense of what manipulative users of the language want someone to think is important.

(The annual report in particular has been compared to a bikini in that its goal is to suggest everything while revealing nothing.)

Literate managers may have misgivings about using such terms, the author writes. And well they should. Trade jargon terms are just fine in context, and neologisms from the executive suite can be fresh, vigorous and picturesque.

But these terms have a way of spilling over into the yuppie vernacular, and soon they become nonsense. They turn into happybabble that impresses no one except other corporate ladder climbers.

The author makes one excellent point though. Analyzing the audience and identifying the terms that have special meanings — either positive or negative — is one of the keys to clear communication. But applying that principle calls for caution.

An example from my own experience: A reshuffling of high executives in one company prompted a junior vice-president to remark that it would take some time to "wrap his mind around" the new scheme. Vice-presidential usage gave the phrase official blessing. Soon we were all trying so hard to wrap our minds around every little day-to-day thing that our brains just about leaked out of our ears.

In a different job, I attended a companywide presentation

See page 25

Chew is a senior technical writer in data communications.

Thanks, ICA members, for making Network World your best-read communications-oriented publication.

NETWORK WORLD

Gary J. Beach
Publisher

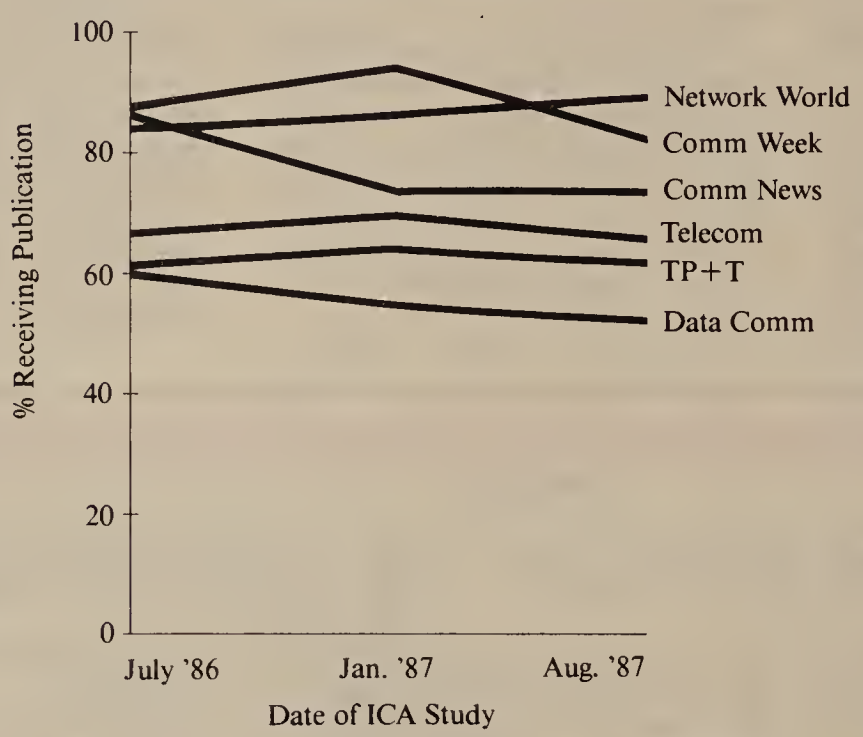
"Rome wasn't built in a day." Although you've heard this saying time and time again, the philosophy behind it — that through hard work you can make things better day by day, week by week, and year by year — remains sound.

It's this very philosophy that *Network World* editors have followed during the past 18 months. And in doing so, they have remained true to their initial goal: to make each issue of *Network World* the best possible for you, our readers.

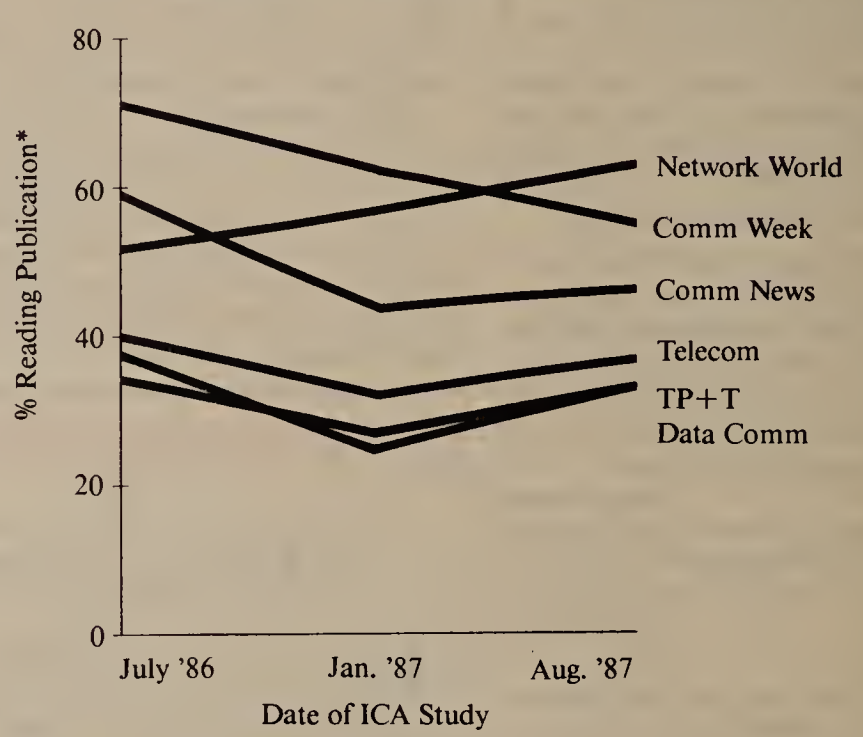
Evidence is growing that *Network World's* long-term commitment to editorial excellence is paying off. In fact, the latest study conducted by an independent research firm among ICA members shows rather impressive results. Not only does *Network World* top the list of communications-oriented publications in receivership, but it now ranks number one in readership as well.

As you can see in the following charts, both receivership and readership of *Network World* among ICA members have steadily increased since July 1986. However, during this time period, these same ratings have declined for almost every other communications-oriented publication.

Total Receivership of Communications-oriented Publications among ICA Members



Total Regular Readership of Communications-oriented Publications among ICA Members



* Readership figure for each publication is based on the number of ICA members who receive that publication.
Studies conducted by First Market Research of Boston.

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Cordially,

Gary J. Beach
Publisher

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An IDG Communications Publication

▶ *1988 AGENDA*

Users pick liaison for COS meet

BY JOSH GONZE
Senior Writer

Six user members of the Corporation for Open Systems (COS) recently participated in a teleconference to choose a user representative to the 1988 COS agenda meeting and to review plans for COS user activities during the year.

The participants, all members of the COS User Committee, elected Charles Morgan of the Defense Communications Agency to be their liaison to the agenda meeting, which was held last week. At the meeting, a long-term plan for COS activities was drawn up. The liaison position is important because it serves as a focal point for user concerns about the content of the COS agenda.

The plan will be submitted to the COS governing body, the Strategy Forum, for final approval, at a subsequent meeting. "After the agenda meeting, things will be pretty well wrapped up," said Bud Huber, manager of corporate networking standards at Hughes Aircraft Co. and one of the teleconference participants. "Then it will be discussed and voted on, or whatever the Strategy Forum chooses to do with it."

Participants interviewed after the teleconference said the users' concerns generally match those of the vendors but that there are differences in emphasis or priority.

One issue of particular importance to users is product testing for conformance with Integrated Services Digital Network standards, according to Gary Workman, staff development engineer at General Motors Corp. and another of the participants. The COS User Committee will work through Morgan, the newly elected representative, to assure a high priority for ISDN testing, he said.

The results of the upcoming Enterprise Networking Event '88 (ENE) are also crucial to COS' user members, according to Bill McClure, chairman of the User Committee and manager of the systems architecture center at Eastman Kodak Co. ENE '88 will be a large exhibition and demonstration of products compatible with the Open Systems Interconnect (OSI) model, the Manufacturing Automation Protocol and other communications standards. It will be held in Baltimore on June 6 through 8.

"We want to stay close to ENE, its planning and progress, and any of the factors that will help make it a success," McClure said.

Group gathers user views

continued from page 23

So far, Stephenson has contacted more than 80 vendors. Interest has been high, but it is too early to say if potential members such as Digital Equipment Corp. and IBM will join, he said.

For vendors, one drawback to joining the group is that product test results are open for public review because the group is government-sponsored, Hodgson said.

"The benefits outweigh this one drawback," he said.

Meanwhile, Hodgson has met with resistance from some MIS and communications managers he has solicited.

"They don't understand what ISDN could mean for them in the 1990s," Hodgson said, "that it will save them money and time."

Beware of execubabble

continued from page 23

that revealed how we were becoming a "relationship-oriented" firm, instead of a "product-oriented" one. The usual reaction was "Gee, I hope we can make as much money having relationships as we did selling products." And so another specialized, meaningful business term was sent to its doom outside its proper audience.

Should you then embrace this kind of language? It depends on your goals. Some communications are intended merely to improve team spirit — a literary counterpart of those meetings that seem to be important because of who attends, not because of what is decided. But if buzzword mode becomes the default configuration profile when you are trying to communicate facts, the verbal data set will be hard to access.

The extra time needed for clarity and exactitude is time well spent. Avoiding the flyblown cliche is more than just a point of proper English; it is a gesture of respect for the reader and a move toward clear communication.

The author suggests that communications managers must know the language of the organization. Indeed — but if they blindly join the Big Guy's phrase-of-the-month club, they run the risk of not communicating anything. How many managers can afford that?

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NEW PRODUCTS AND SERVICES

See inside for:
- ▶Dial backup system
- ▶Handheld BER tester
- ▶Software for faxing from IBM terminals

MAP/TOP USERS GROUP

V 3.0-based gear unveiled at meet

GE Fanuc, Micom, Retix show products.

BY MARY PETROSKY
Senior Correspondent, West Coast

LONG BEACH, Calif. — Vendors used the recent MAP/TOP Users Group meeting here to unveil products based on Version 3.0 of the Manufacturing Automation Protocol and Technical and Office Protocol.

GE Fanuc Automation North America, Inc. and Micom-Interlan, Inc. announced MAP/TOP Version 3.0 products aimed at users, while Retix announced shipment of its full seven-layer suite of MAP/TOP 3.0 protocols to equipment makers.

GE Fanuc announced a three-layer implementation of the MAP 3.0 software, Mini-MAP, aimed at factory floor equipment requiring real-time response capabilities. It will run on either broadband or carrier-band networks.

The company also announced a full seven-layer implementation of MAP Version 2.2 to run on its Series Six Programmable Controller local-area network interface hardware. In addition, GE Fanuc announced that its local net interface for the Series Six — previously available for carrierband networks only — is now available in a broadband version. The interface hardware consists of a controller board and modem board that plug directly into a Series Six CPU rack.

The MAP 2.2 software will coexist with Datagram and Global Data proprietary software previously available from GE Fanuc. Datagram is a real-time service for peer-to-peer message transfer between stations, and Global Data is a protocol providing real-time sharing of data among a group of stations.

All of the new GE Fanuc products are available now. Final pricing was not available at press time.

Micom-Interlan announced its NP632 network processor, which is compliant with TOP specifications and designed to operate with systems running Unix System V Revision 3. The NP632, slated for delivery in March, consists of hardware and software. The hardware is an IBM Personal Computer AT-compatible board with an Intel Corp. 80186 microprocessor, 82586 Ethernet controller and 512K bytes of random-access memory. The board can be plugged into any Personal Computer with an IBM Personal Computer-compatible bus.

On-board software provides support for physical, data link, network and transport layer protocols. Software designed to run on the Personal Computer supports either TOP services, including the File Transfer and Access Method (FTAM) protocol, or AT&T's Remote File System (RFS) protocol.

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MICRO-TO-MAINFRAME CONNECTION

PC acts as controller with NSA tool

BY JIM BROWN
New Products Editor

LAGUNA HILLS, Calif. — Network Software Associates, Inc. (NSA) recently introduced a product that makes an IBM Personal Computer act as a terminal controller capable of linking remote asynchronous Personal Computers to an IBM mainframe.

AdaptAsync Controller consists of hardware and software that make an IBM Personal Computer or Personal System/2 Model 30 appear to the host as an IBM 3274 or 3174 terminal controller. The product converts the asynchronous data received from remote Personal Computers to the Systems Network Architecture/Synchronous Data Link Control format needed to link to the mainframe.

AdaptAsync boards support the link between the remote Personal Computers and AdaptAsync Controller. AdaptAsync Control Program Software manages the SNA/SDLC links between AdaptAsync Controller and the mainframe.

The product enables remote Personal Computers running NSA's AdaptSNA LU6.2 APPC, AdaptSNA RJE, or AdaptSNA 3270 emulation software to use asynchronous modems and communications software to link to the host site. Previously, remote Personal Computers running NSA's emulation programs were required to use an SDLC adapter board and synchronous modem in order to link to a mainframe.

AdaptSNA LU6.2 APPC supports IBM's Advanced Program-to-Program Communications to enable an APPC program on the Personal Computer to communicate with an APPC program on the mainframe. AdaptSNA RJE enables the Personal Computer to emulate an IBM 3770 remote job entry workstation, while AdaptSNA 3270 enables the Personal Computer to appear to the host as an IBM 3278 or 3279.

Those NSA emulation software packages wrap asynchronous data in an SDLC-like data packet. AdaptAsync Controller receives that packet and checks for errors using a cyclical redundancy check algorithm.

With AdaptAsync Controller, up to four AdaptAsync boards can be installed in the central-site Personal Computer. Each board supports eight RS-232 ports, making a fully configured AdaptAsync Controller capable of supporting up to 32 concurrent host links. Each of those host links is capable of supporting up to four terminal sessions, making a fully configured AdaptAsync Controller capable of supporting up to 128 concurrent terminal sessions.

Personal Computers link to AdaptAsync boards asynchronously via dial-up lines, X.25 nets or a direct RS-232 link. The link's speed is limited by the asynchronous modem's speed.

AdaptAsync Controller links to the mainframe via an IBM front-end processor. The link to the front-end processor requires AdaptAsync Controller to be equipped with an SDLC board and a synchronous modem.

An eight-port AdaptAsync board is priced at $1,995, including the cost of the AdaptAsync Control Program software. AdaptSNA LU6.2 APPC costs $285, AdaptSNA RJE costs $785, and AdaptSNA 3270 is priced at $585.

Network Software Associates is located at 22982 Mill Creek, Laguna Hill, Calif. 92653, or call (714) 768-4013.

FRANKLIN TELECOM

Boards added to X.25 line

BY JIM BROWN
New Products Editor

WESTLAKE VILLAGE, Calif. — Franklin Telecom recently expanded its X.25 product line by introducing boards that enable IBM's Personal System/2s and Personal Computers to link terminals to hosts via an X.25 network.

The firm also introduced boards that allow a Personal Computer AT to generate X.25 packets used to test X.25 network circuits.

The firm's MCP-186X board enables a Personal System/2 supporting IBM's Micro Channel bus architecture to act as an X.25 packet assembler/disassembler, concentrator and switch. The firm also introduced versions of the product that support the Personal Computer bus architecture. The PSX-MPP is used with Personal Computers, while the PSX-MPP2 is used with Personal System/2s.

The boards support four RS-232 or RS-422 ports and are capable of linking to an X.25 network at speeds up to 64K bit/sec. Each port can be configured to support a terminal or an X.25 host connection.

Each Personal System/2 or Personal Computer is capable of supporting up to four of the boards, bringing the total number of ports either device will support to 16.

The PSX-MPP and PSX-MPP2 boards are also supplied with software designed to support X.25 transmission of such protocols as asynchronous, High-Level Data Link Control, IBM's Systems Network Architecture/Synchronous Data Link Control, IBM's 5250, IBM's interactive 3270 Binary Synchronous Communications, IBM's remote job entry 3780 BSC and Burroughs Corp.'s Poll Select.

The firm's four-port PSX-LGN board and software generates X.25 packets that can be used during tests of X.25 circuits.

Each port is capable of generating up to 50 packets per second, and the software is capable of generating a data stream that supports one of several different protocols.

The MCP-186X costs $1,995, while the PSX-MPP and PSX-MPP2 cost $2,995 each. The PSX-LGN is priced at $4,250.

Franklin Telecom is located at 733 Lakefield Road, Westlake Village, Calif. 91361, or call (805) 373-8688.

First Look

Control Resources unveils dial backup system

Control Resources Corp. announced a dial backup system that switches failed leased lines to dial-up service.

The company's **IDBS Intelligent Dial Backup System** features microprocessor-controlled common logic and internal electronic cross-connect capabilities that automatically switch the local end of a failed leased line to any available dial-up facility.

The automatic switching feature eliminates the need for patch panels, according to a company spokesman. The system also features bridging for backing up multipoint circuits. A central-site network operator is able to access and control remote IDBS Intelligent Dial Backup Systems via an IBM Personal Computer.

An IDBS Intelligent Dial Backup System supporting 12 leased lines and four dial-up line pairs costs $11,900.

Control Resources Corp., E64 Midland Ave., Paramus, N.J. 07652, or call (201) 265-2700.

Package lets IBM VM computers send facsimiles

Systems & Telecoms, Inc. unveiled software that enables users to send facsimiles from existing IBM or compatible terminals.

VM Fax software runs on IBM hosts under the VM operating system. It enables users to send documents from their terminal screens to facsimile machines. The product will run on IBM's new 9370 mid-range computer and is fully integrated with IBM's Professional Office System, a management-level office automation system.

VM Fax keeps a detailed log of all the facsimiles it sends, including the time sent and the recipient. It also features automatic dial and re-try, priority transmission and transmission at a specified time or date. The product is capable of transmitting one document to multiple destinations. It also enables terminal users to address facsimiles to a person's name.

VM Fax costs about $30,000.

Systems & Telecoms, Inc., Suite 100, 12020 Sunrise Valley Drive, Reston, Va. 22091, or call (703) 391-2712.

Handheld bit error rate tester introduced

Data Comm for Business, Inc. introduced a handheld bit error rate-, polling- and timing tester with an LCD display.

The **BT-1 Bit Error Rate Tester** links to asynchronous and synchronous communications lines and monitors bit error rates. The unit transmits a predefined message or bit pattern on the line that is looped back to the device. The unit measures the data received against what was transmitted to determine bit errors. It is also able to poll devices at up to 16 remote locations to determine errors in the polling procedure. Timing tests include reaction time to flow control and round-trip message time.

BT-1 costs $795.

Data Comm for Business, Inc., 807 Pioneer, Champaign, Ill. 61820, or call (800) 637-1127 or, in Illinois, call (217) 352-3207.

Stratus bolsters XA2000 mini's communications

Stratus Computer, Inc. unveiled communications hardware and software for its entire XA2000 line of minicomputers.

The **Input/Output Subsystem (IOP), Universal Communications Adapter** and **Ethernet Communications Adapter** enable users to integrate Stratus on-line transaction-processing systems with other vendors' equipment.

The IOP increases the number and variety of communications interfaces available for the XA2000 line. It allows users to plug in a selection of Stratus' Input/Output Adapters (IOA) that are used to link the minicomputer to peripherals and networks.

The Universal Communications Adapter is an IOA for the IOP that supports custom programming for communications between Stratus systems and a variety of synchronous and asynchronous equipment.

The Ethernet Communications Adapter provides an IEEE 802.3-compliant interface to other vendors' Ethernet networks. It supports a 10M bit/sec bandwidth.

The announcements were made with the introduction of a pair of new Stratus Computer fault-tolerant transaction processors, the **XA2000 Model 50** and **Model 70.**

The IOP costs $23,500 and comes standard on the Models 50 and 70. The Universal Communications Adapter costs $2,500, and the Ethernet Communications Adapter costs $4,000.

Stratus Computer, Inc., 55 Fairbanks Blvd., Marlborough, Mass. 01752, or call (617) 460-2000.

▶ *MULTIPORT BRIDGE*

ILAN permits linkage of three types of LANs

BY JIM BROWN
New Products Editor

MARLBOROUGH, Mass. — CrossComm Corp. is expected this week to introduce a multiport bridge capable of linking up to three different local-area network technologies.

The firm's Integrated Local Area Network (ILAN) enables an Ethernet-attached device to communicate with a device attached to an IBM Token-Ring Network or an AT&T Starlan network. The new product will replace the existing CrossComm 487 integrated bridge, which supported a link between two networks.

Because ILAN supports only the data link layer of the International Standards Organization's seven-layer Open Systems Interconnect (OSI) model, the two devices being linked must support the same networking protocol in order to exchange compatible data.

ILAN, which uses an IBM Personal Computer chassis, links devices supporting the Transmission Control Protocol/Internet Protocol, Digital Equipment Corp.'s DECnet, Xerox Corp.'s Xerox Network Systems, the Technical and Office Protocol or OSI-compatible networking software.

Each ILAN unit supports four ports. Each of the ports is capable of supporting an Ethernet, Starlan, Token-Ring, fiber-optic or T-1 interface board retrofitted by CrossComm to support IBM's Personal Computer bus architecture.

An ILAN can be used in standalone mode to support links between four different local nets. By using one of the four ports to house a coaxial cable, fiber-optic or T-1 interface board, multiple ILANs can be linked to one another to form a backbone network. That backbone ILAN network could enable a network supported by one ILAN to communicate with a network supported by another.

ILAN converts data packet formats when linking networks

When linking one network to another, ILAN will convert the data packet format used by that network to the format used by the other. However, the product will not convert the networking protocols or data contained in those packets.

A central processor in each ILAN manages the transfer of data from one network adapter board to another. Data sent from a 10M bit/sec Ethernet user to a 1M bit/sec Starlan user is received by ILAN's Ethernet adapter and is placed in a 16K-byte buffer. That data is then transferred to ILAN's Starlan adapter board and transmitted to the receiving device at the 1M bit/sec Starlan speed.

Depending upon packet size and differences in operating speeds between the different networks, ILAN will transfer between 9,000 and 10,000 data packets per second.

ILAN also includes network management software dubbed Remote Management Software. The IBM Personal Computer-based software is used to monitor and control ILAN performance.

The software is able to collect statistics detailing data traffic between each ILAN network adapter board. It also enables a network manager to set up routing tables that limit the devices a user on one network is capable of accessing on another.

Without routing tables, each ILAN is capable of learning the devices attached to each of the networks it supports. When a user sends a packet, ILAN will wait to see if another device on the same network receives it. If it is not received, ILAN will note which user sent the packet and broadcast it to all other networks it supports. Once that packet reaches its intended receiver, ILAN will remember the network to which that user is attached.

Token-Ring adapter due soon

Currently, ILAN will support Ethernet and Starlan boards. A Token-Ring Network adapter board for ILAN will be announced this spring. The ILAN fiber-optic interface board is expected out within six months, and the T-1 interface board for ILAN is due out next month.

The price for an ILAN unit ranges from $4,575 to $10,850. The Remote Management Software costs $2,950.

CrossComm Corp. can be reached by writing P.O. Box 699, Marlborough, Mass. 01752 or by calling (617) 481-4060.

V 3.0-based gear unveiled at meet

continued from page 27

Both FTAM and RFS perform similar file system functions, such as reading and transferring files across diverse equipment.

Providing both FTAM and RFS will give users a choice in protocol suites when building applications, said a Micom-Interlan spokesman. The NP632 software also supports AT&T's Network Service Library. The NP632 is priced at $1,590.

The acquisition of Retix products marks the beginning of product development cycles at many companies. Of Retix's nearly 30 licensees, which include IBM, Hewlett-Packard Co. and Hughes Aircraft Co., 15 have purchased the full MAP/TOP 3.0 protocol suite, said Charles Chriss, vice-president of marketing at Retix.

The Retix software is modular layer by layer in accordance with the Open Systems Interconnect (OSI) model, with individual modules available separately, as well as in a suite. The MAP 3.0 suite includes the OSI FTAM Phase 2 protocol, X.500 Directory Services and MAP/TOP network management protocols, OSI presentation layer and session protocols, and other specified protocols. The new TOP 3.0 suite is identical to MAP 3.0, with the addition of X.400 Message Handling System software.

Chriss said board-level products are likely to be the first commercially available products based on the MAP/TOP 3.0 specification. Retix will release a number of end-user products over the next three years, said Andy DeMari, Retix's president and chief executive officer.

The CP2000
Intelligent T1 Multiplexer
Announces

The right road to T1

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You can travel down the road to T1 at your own speed, reaching your destination with just the features and capabilities appropriate to your business networking needs.

The CP2000 Digital Network Access System

integrates all the features of an intelligent T1 multiplexer with the appropriate network management system to meet your needs. Now DSC Granger announces a new family of Network Management products. No one can offer a wider range of tailored alternatives to your T1 requirements.

No one.

Digital Network Access System

Features	Linked Intelligence Monitor	Linked Intelligence Controller	Linked Intelligence Control Center
User Interface	ASCII Terminal	P.C.	Graphics Work Station
Automatic Route Restoration	Operator-directed	Operator-directed	Automatic Optimum Route Restoral
Best Route Optimization	Operator-selected	Operator-selected	Automatic
Dial Back-up	Yes	Yes	Yes
Automatic Alarm Reporting	Yes/Netview P.C. Support*	Yes/Netview P.C. Support*	Yes/Netview P.C. Support*
Reports/Alarms	Pre-defined	User-defined	User-defined
Diagnostics	Command-oriented; — local — remote	Menu-driven; — local — remote — system	Menu-driven; — local — remote — system — circuit
Levels of Security	5	User-definable	User-definable
Partitioned Networks	Physical	Software-definable	Software-definable
Network Synchronization	Pre-programmed	Pre-programmed	Dynamic

Network Management

The Digital Network Access System offers much more than simply telling you the status of the network. Our full management system includes an open architecture that exchanges key performance information over multiple logical networks. Add management features as you reach your next networking milestone.

*Netview P.C. is a registered trademark of International Business Machines Corporation

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Only DSC Granger products let you begin your T1 network for as little as $10,000 a node. Sophisticated features, such as automatic route restoration, customized reports and Netview P.C.,* can be added as required.

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DATAPRO PBX USER SATISFACTION STUDY

	Northern Telecom	NEC	AT&T	ROLM
Overall Satisfaction	1	2	3	4
Most Frequently Recommended System	*1	[illegible]	4	2
Training	1	4	3	2
Documentation	1	4	2	3
Attendant Operations	1	[illegible]	3	2
Installation/Cutover	1	2	3	4
System Management	1	[illegible]	[illegible]	3
User Operation	*1	[illegible]	[illegible]	2
Hardware Reliability	1	[illegible]	3	4
Maintenance/Service	2	[illegible]	[illegible]	[illegible]
Troubleshooting	1	2	[illegible]	[illegible]
Systems Performed as Expected	1	4	[illegible]	[illegible]

(P&I) Telecommunications Consultants [illegible]

* Tie in Ranking *End User Recommendation

THE FACTS SPEAK FOR THEMSELVES

The Northern Telecom Meridian* SL-1 was rated Number One over NEC, AT&T and Rolm in Datapro's PBX user survey. Nine out of ten Meridian SL-1 owners said they'd recommend it to another business—the highest satisfaction of any of these systems. No surprise, considering what nearly everyone is saying about the Meridian SL-1:

"Overall leader Northern Telecom took a blue ribbon in [reliability, service, installation and support]." *COMMUNICATIONS CONSULTANT MAGAZINE*

"One fantastic PBX—with an incredible reputation for logic, reliability and constant improvements." *TELECONNECT MAGAZINE*

"Editor's Choice. Connecting a PC to the Meridian [SL-1] is a real pleasure." *PC MAGAZINE*

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NETWORKING

Opinions

VENDOR RELATIONS

ANDRES LLANA JR.

To build a better vendor

Sometimes, users take too much for granted when a service or product is provided too easily by others.

In the early days of the computer industry, services such as free applications consulting, free training and free manuals were always available to prospective users. Similarly, AT&T was always available before divestiture with free technical support, training, manuals and good advice for users' communications needs.

In those days, most users of telecommunications services were protected by vendor assistance from making a mistake in the application of technology. Of course, since divestiture, all that's changed. User support is very thin among today's major telecommunications suppliers. Sales representatives are narrowly trained in their product lines, and they don't have the technical depth to support their customer base.

This technical void has been further widened by vendor mass marketing techniques, which rely largely on impersonal telemarketing operations to corral new users. This process doesn't provide the vendor with any sort of understanding of the user's needs or requirements. And this is not the way to serve the needs of the user in an evolving technology.

Telecommunications is still very much a person-to-person selling process that requires both an interest in and a knowledge of the customer's requirements. The shoddy attempts by some carriers to satisfy customer requirements still fall short of the assistance required by these carriers' complicated service offerings.

This lack of service on the part of providers has created a reluctance on the part of users to expand their telecommunications systems and take advantage of today's state-of-the-art technology.

In their rush to compete on a bottom-line basis, the carriers may have created a problem for themselves. A large credibility gap has opened between their account representatives and users. Users will not believe the carrier's salespeople if they are not likely to really understand the products they're selling.

Users have long grown tired of the "we cost less than" pitch, since now every vendor is bound to cost less than another in some way. They want to know how to apply technology better and to fit particular services into their present service mix. In the past, there have been wholesale crossovers from one carrier to another by users hoping to reduce costs; now all that is over. Carriers will have to understand users' needs better in order to fit their products into users' networks.

Today, the differences that separate various carrier products are subtle; there are no longer the pronounced differences that once grabbed the user's attention. The user has become a smart buyer who demands that the vendor become an informed seller. Accordingly, tomorrow's successful vendors will have to develop a whole new set of skills if they are to become successful with the maturing user.

First, vendors will have to learn to return all customer calls the same day. Second, these new vendors will have to go back to school to learn the basic skills associated with network management. They must become intimately conversant with their products and those of their competitors, so that they can squarely answer customer questions regarding competitive products.

Further, they must learn to contact prospective customers on a regular basis to acquaint them with even the most trivial enhancement to their product lines.

When a customer has been sold a product, vendors should follow up on any and all customer complaints. If necessary, sales representatives should cut through internal bureaucracies to make certain that the customer's complaint has been followed up and service problems resolved.

In addition, they must also strive to keep customers informed at all times as to the service complaint's progress. Never should they refer customers to a harried operator at the end of an 800 number.

And they should always be certain that technical support, including product information, is accurate and timely enough to meet the needs of the user. Tomorrow's successful vendors will never walk away from a problem, but will strive to find a resource that will answer the needs of customers — even at 5 p.m. on Friday, right before that three-day weekend.

To the victor belong the spoils; to the vendor following these rules will come customer loyalty and added business that can't be bought at today's levels of service.

Llana is a consultant for the Vermont Studies Group, Inc. of West Dover, Vt.

NET DESIGN

PHIL LEW

In search of solutions

Too many users shy away from helpful network design software for fear of its complexity. Others buy inappropriate design packages or services, expecting them to produce the perfect network configuration magically.

Still others assume that mainframe software is necessary to produce decent network designs or that only "design professionals," such as common carriers or consultants, should do the job.

While network design software can solve many of users' problems, it's not their only alternative. Because the goal of network design is practical and efficient network operation, users should approach the task with the same roll-up-your-sleeves attitude with which they approach the day-to-day operation of their networks.

Equally important is the need for network optimization. Many corporations find that once their network is installed, new applications come out of the woodwork. In response, new nodes are added, bandwidth becomes crowded, and poor response time results. Networks installed only a few years ago are now pushed to their limits, and network managers are looking for optimized solutions.

Like network design, the network optimization process is dreaded by many network managers, and it's no wonder. Optimization not only involves solving current problems, it also provides for growth. The prospect of purchasing an expensive, complex software package is another deterrent.

Before deciding for or against a software tool, network managers must consider their alternatives. There are several ways to approach the problem: Use network design software; design and optimize the network manually; enlist the help of a common carrier or engage a consultant.

In addition, there are two major types of network design and optimization software: personal computer-based and mainframe-based. The former provides a familiar interface and is generally easy to use. Mainframe-based software, accessed through dial-up services or through lease/purchasing agreements for on-site use, is generally more difficult and cumbersome to use. However, these packages can offer more comprehensive analyses and can deal with larger nets than personal computers can.

Mainframe applications have a definite advantage over their personal computer counterparts when it comes to global network redesigns. But because personal computer-based software is more flexible and easier to use, it can usually out-maneuver mainframe programs for what-if performance and cost analyses.

Many users will find that, regardless of the type used, the software doesn't accurately answer all questions posed by the characteristics of a particular network design.

For instance, is redundancy needed, and where should it be placed? How can existing equipment and circuits be used to help reduce installation charges? Such limitations, combined with the high cost of both personal comput-

Lew is a staff consultant at Network Strategies, Inc., a communications consulting firm in Fairfax, Va.

The history of progress is, in essence, a history of ideas and opinions. Do your bit for history. Share your opinions and ideas in a column for *Network World's* opinions pages.

Manuscripts must be letter quality, double-spaced and approximately 700 words in length. Disk or modem submissions are preferred.

Contact Steve Moore, features editor, *Network World*, Box 9171, Framingham, Mass., 01701, or call (617) 879-0700, ext. 732.

Opinions

▶ **TELETOONS — By Phil Frank**

er and mainframe packages, are the major reasons why many network managers are reluctant to use design and optimization software.

For some, it may be feasible to design a small network manually. This may sound impractical, but for networks of less than 20 to 30 nodes, it is often as efficient as using a complicated software package. Supplementing these manual efforts with trial-and-error methods, guidelines provided by a network vendor or a good text on optimization can result in a cost-effective network design.

For larger networks, common carriers are another alternative. Many telecommunications managers may feel that carriers will provide network designs that are relatively expensive or that have hidden charges. However, if a manager solicits designs from several vendors, each has incentive to provide an optimal design. The only problem is that these designs are usually optimal only with respect to that carrier's network.

In pursuing this approach, users must compare designs from several carriers and look above the bottom line. Incorporating the best aspects of each may be the best solution.

Those who are still uncomfortable with vendor solutions often turn to consultants. Consulting firms design and optimize networks frequently enough to buy their own software, and they often provide services at costs that are competitive with buying a software package or doing it yourself.

An experienced consulting firm also can provide insights into other aspects of network optimization, including network management, network control, network service and availability, as well as network cutover. However, users must decide for which services they are willing to pay.

Despite the disadvantages of the above alternatives, each provides a method to improve network response time, reduce costs and increase reliability. Networks that suffer from an inadequate, outdated design can benefit from any of these alternatives.

Above all, users must avoid preconceptions. The selection of a network design or optimization methodology should be as objective and comprehensive as the development of the design itself.

NETWORK WORLD EDITORIAL

Weathering Wall Street

Though it may seem odd, the stock market crash and continuing uncertainty in the financial markets have clearly illustrated the strategic importance of networking to U.S. corporations.

When the Dow Jones industrial average tumbled more than 500 points on Oct. 19, analysts warned that the U.S. economy was headed for a slowdown. Businesses and consumers had spent too much money too fast during the years of the bull market, they said, and now the bill had come due.

During a recession, economists predicted, consumers would be forced to pull in the reins on their spending. That would put the pinch on firms that would, in turn, cut capital expenditures. Communications vendors — especially purveyors of big-ticket items such as private branch exchanges and T-1 multiplexers — must have shuddered. It looked like bad weather ahead.

Three months later, the future looks less bleak. It isn't at all clear that our economy is headed toward recession. Reports are mixed on whether consumers and corporations are hoarding their cash or capital and holding off on purchases. Major problems like the trade and budget deficits still loom large. But the pundits aren't so cocksure that the U.S. is sailing into an economic tempest.

One thing is clear. Despite the problems on Wall Street, which is still on a roller-coaster ride, U.S. corporations have little intention of cutting back on networking projects, particularly projects of strategic significance.

Since Black Monday, *Network World* has polled readers on whether they plan to cut their networking budgets. Not one reader plans to trim spending on communications equipment or services.

Why?

Network expenditures are no longer seen as just capital expenditures. Looking at networking as a necessary evil, as simply a cost of doing business, is an old-school philosophy.

Users realize that networks are the lifeblood of a modern corporation. Networks are the tools that help companies do business smarter and less expensively, and deliver products and services faster and more widely. Networks can help companies weather — even prosper in — tough economic times. To cut networking expenditures would be, in short, shortsighted.

The corporations that live and die on Wall Street — the brokerages and financial services companies — are living proof that networking is seen in a new light. Hit hard, securities firms have laid off thousands of workers since the market crash. Their earnings have taken a beating.

Despite this, many of these companies are pushing ahead with ambitious networking projects because they know that networking offers a strategic edge and can help them differentiate themselves from hungry competitors vying for fewer investment dollars. They know that networking can help them deliver innovative new services to tempt wary investors.

A couple of examples: About 60 of the nation's largest brokerages are working together to build a Manhattanwide private network expected to lower the cost of their private-line services dramatically. The networking project will cost millions of dollars at a time when these brokers are still reeling from market devastation.

How can they justify the expenditure, given the current market situation? "The current market situation," says a Securities Industry Association spokesman, "makes it imperative that we implement a more cost-effective system."

Merrill Lynch, Pierce, Fenner & Smith, Inc. in New York is forging ahead with a project that involves the installation of 17,000 IBM Personal System/2s linked to Token-Ring Networks and a wide-area net that will give brokers access to mainframe applications. The firm is also developing, in conjunction with Automatic Data Processing, Inc., a custom, satellite-based stock quotation service.

Merrill Lynch believes the network will help its brokers serve clients better. Despite the problems Merrill Lynch and other brokers face, "my company remains committed to the project," says Michael Morse, assistant vice-president of electronic data processing. "We recognize that delaying it would cost us more."

Despite economic conditions, strategic networking projects will weather the storm.

NETWORK WORLD

Features

February 1, 1988

Management Update

Molding the manager

Continued from page 1

consultants and telecommunications consultants on various aspects of style.

Michael Finneran, president, dBrn Associates, Inc., a communications consulting firm in Hewlett Neck, N.Y.

When I think about a style that somebody's going to follow in our trade, there are essentially two that come to mind. One is confrontational; the other is cooperative. In particular, these come into play when dealing with vendors. You can bust their horns and call up everyone in the company, or you can be a nice guy and try to work along with them.

My personal feeling is that you catch a lot more flies with honey than you do with vinegar. That is, if you can understand the vendor's constraints and work within them, the vendors will go a lot further out of their way than they will for a guy who screams bloody murder over every little thing that goes off track. And you're powerless to do anything without the cooperation of the vendor. You can be a real hardass in the negotiation, but, next time you need support, kiss it goodbye. You drove your one good bargain, and those are the last concessions you're ever going to eke out of those guys.

Susca is a free-lance writer specializing in technical and management topics. He is based in Rindge, N.H.

Developing managerial style requires hands-on interaction and communication.

It's essentially the same thing with personnel in your department. For people to be motivated and to want to participate, they have to see that they have some kind of free hand. You can't run things like the guy who beats the drum on the Roman slave galley. Some people are born to bust other people's horns — they think that's how you get things done. I think they're wrong.

I don't know how much time, especially in our business, we really spend on style, primarily because we are more technicians than managers. We're getting more and more people with management training coming into management positions in technical fields, but, still, the garden-variety telecom manager is someone with a technical bent.

Management issues are the kinds of things that keep us from playing around with screwdrivers and wires and things we're comfortable with. The result has been that the personnel management function has been abysmal.

It's just a question of whether managers can take the same mindset that applies creativity to technical problems and apply that to personnel problems. Not enough [people] seem to have been able to make that translation.

John Mott, director of telecommunications, Chicago Board of Trade

My background is primarily the Army Signal Corps and, later, Officer Candidate School. As a military officer, you have extremely high

Continued on next page

From previous page
personal and professional standards. There is no quibbling; there is no lying.

There are some ironclad rules we have within our own organization. The main one is never lie to one another. If someone makes a mistake, it's not hidden at all; we bring it out and use it as a teaching vehicle.

I think it's very dangerous to apply one style of management to a class of people such as subordinates or staff and have an entirely different style for your peers and yet another for your superiors. Each person is different, and you need to deal with them on a people level, I think.

One person may be a confrontation avoider; another person might relish a challenge. In the first case, you might open a conversation with something like, 'I came across something I want you to know about. We don't really have to do anything yet, but let's talk about it.' To the second person, you might say, 'Hey, guess what happened? We've got something we can really get our teeth into now.'

It depends on the people and their own style. You can give them each the same information, but the way you do it is important.

Theodore Freiser, president, John Diebold and Associates, an international business consulting firm in New York

I think it's important to emphasize that you can be a successful manager with a range of styles. I do believe, however, that all management styles that work effectively have certain things in common. One is that they all encompass treating people as individuals and with respect.

Another is that you have to have a basic ability to communicate — to make clear what it is you expect and how you are going to measure performance and then to communicate clearly your reaction to their performance. People can enjoy working with you even when you sit them down and say, 'You have not done well here; here's where you've fallen short, and here's what you have to do.' You can't be Mr. Nice Guy. People like to work with someone who's effective.

Thirdly, managers do not have to be the smartest technically, but they have to understand how their organization fits into the whole scheme of things, what contribution they are to make and how to go about doing it.

David Edison, director of corporate information and communication systems, Westinghouse Electric Corp., Pittsburgh

When you start out in this business from a technical viewpoint and move into a [chief information officer] position, your horizons have to change, because you're the only one who'll be able to translate the objectives of the business into communications and information systems terms. One way of developing that ability is to spend a lot of time getting to understand your colleagues on the corporate staff. You need to know more about the company's business and what opportunities exist for information systems to help the company do its business better. Having achieved this blend, you get those aims and objectives fed down to the very lowest level.

If you have a vital communications link somewhere, and if you maintain a separation between the technical people and everybody else, the technical people will see that link simply as a connector or a card or a pair of wires on a frame. But if you relate that to the company's business strategy — why the wire is there, how much business it carries and what the consequences are of a failure — your technical people have a better idea of how to set priorities.

One good test of a management style is whether the people at the bottom understand goals in the same way as the people at the top.

Kathleen Greer, president, Kathleen Greer Associates, a management consulting firm in Framingham, Mass.

Delegating is a key element of management style. I often meet managers who are afraid to delegate, because they're afraid to take the risk that someone's not going to do a project the way they would do it. From a time management point of view, that's a problem, because they obviously run out of time. Managing well is being able to expand your time through the work of others.

As far as managing stress among employees, they are going to look at their manager as a model. If you as a manager don't manage your stress or your time, then you can't expect your people to, either. If people are out sick because of stress — and research shows most illnesses now are somehow tied to stress — then that creates a problem for the manager, because someone has to do that person's work.

You can change most aspects of your style if you work at it. If you can take time to look at your reasons for doing things, that's the first step. Becoming more effective at time management is a matter of taking each case and making a decision to delegate until it becomes a habit.

Stan Welland, manager of corporate telecommunications, General Electric Co., Bridgeport, Conn.

I consider myself entrepreneurial, risk-oriented, willing to make a move once I have as much information as I can get my hands on and willing to let people make decisions at lower levels. When I look back on my career, I see that my management style was not fashionable in the early '70s and mid '70s, but it came into favor in the '80s, and it fits with the company I'm with now.

If I go back to my days at a large oil company, the review process was unending; everyone all the way up the management chain had to be part of the decision process — everyone had to have a say. That's the way it was in the '70s, and I don't think I'd be as successful in my current job if I brought that style of management to GE.

Your management style is a combination of your own personality tempered with what you see in peers and managers through your career — and you have to filter out what's bad and [keep] what's good.

If your style is such that you can get your folks cranked up to work with the right mixture of teamwork and entrepreneurial spirit, it's amazing what can be done.

> "Delegating is a key element of management style . . . Managing well is being able to expand your time through the work of others."

Harvey Shrednick, vice-president of information services, Corning Glass Works, Inc., Corning, N.Y.

Style is moldable to a certain degree, but I don't think you can go from one type of style and deliberately change to the polar opposite if it's something that doesn't feel comfortable to you. In the 25 years that I've been in management, I really don't see myself having significantly altered my style.

You adapt your style by experience, by seeing what works and what doesn't work. I guess my style is the product of some early-on development by a couple of key people; seeing how they managed vs. other people and the way they managed and selecting one model [over] the other.

So I've tried out my style, and it works, but it's very dependent on the situation.

I think the corporate culture is very important for determining how your management style succeeds. I've been in organizations where people are very high-performing, domineering, aggressive, Type A personalities and where that type of environment made my style less effective.

A key factor that went into my decision to come to Corning was the feeling that this was the right environment for me to prosper. I found a company where I fit and where they value my contribution based on my style.

Gerald Mayfield, president, DMW Enterprises, a communications consulting firm in Stamford, Conn.

It is very difficult to change your style consciously, but it's essential to do for those who are going to find positions of increasing responsibility. You can see the trend for companies to put more senior people in charge of their information systems and communications infrastructure; the CIO is a good example of that. Those who aspire to that position have to undergo a fundamental metamorphosis from what has made them successful as individual telecommunications managers to someone with a broader business understanding.

I spent quite a number of years within AT&T and have had dozens of professional consulting engagements with companies. I find that there are certain attributes that are tolerated and even encouraged at lower levels in the organization in terms of how the jobs are accomplished — the aggressiveness, the assertiveness — that simply don't play at higher levels. Much more finesse is required; it's a consensus building, a building of support bases.

A lot of companies identify people with this consensus-building ability fairly early in their careers. By moving these people into different departments, positions and responsibilities, the companies seek to broaden and polish their capabilities. If the culture of the company is such that these people are selected, rather than applying, for the so-called fast track, I'm fairly pessimistic that there's anything a person can do to advance themselves if they're not selected. In that case, you have to look for another company. But, if they don't have that fast-track selection process, finding a mentor is vitally important.

Ron Kopitowsky, vice-president for advanced planning and international communications, Irving Trust Co., New York

I change by the minute. There are no two situations that are identical. There are some things I'm doing now, some things I did yesterday or 10 years ago, and I'll do whatever is necessary tomorrow. The business world has changed; management above me has changed; their needs have changed, and I hope I can adapt to whatever the situation is. You might have seemingly multiple personalities at times, but each one of them must be part of you and something you're comfortable with.

As far as formal or informal styles, it really depends on the person. There are some people who are more shirtsleeves, first-name, let's-get-down-to-it. Others are stuffier; that's in the technical environment, and that's also on the banking side.

And I've seen formal and informal styles both in the top and the bottom. The corporate philosophy allows them to coexist.

In managing technology, there may be different strengths and weaknesses in your background, but I don't think style is one of them. I think we in telecommunications have just as many different and effective styles as any of the bank's other operating areas.

▶ *LAN DECISIONS*

Checking out connections

When shopping for a work group net, managers need to look at more than what's on the shelf.

BY GAIL JAMES AND GARY KWOK
Special to Network World

Today, almost any company with more than 200 employees has a minicomputer as well as a growing number of stand-alone personal computers. As the personal computer population swells, the benefits of connecting them to one another and to the minicomputer to allow data sharing becomes more apparent. How to make these connections is less clear.

Network decisions must consider both the entire company's computing resources and computers within a department or work group.

In companies not already locked in to IBM Systems Network Architecture nets, a common decision facing network managers is whether to implement minicomputer terminal-server local-area networks or distributed personal computer local networks.

James is president and Kwok is manager of project consulting at Lanquest Group, an independent network consulting and engineering firm in Santa Clara, Calif.

Personal computer networks

Personal computer local networks typically comprise a group of personal computers and a microcomputer file server. Devices are connected to the net via a network adapter card, which generally costs $500 to $800. Processing work load is distributed among the network workstations. Personal computer local nets are offered by many companies, including 3Com

Continued on next page

From previous page
Corp., Novell, Inc., Banyan Systems, Inc. and IBM, which manufactures the Token-Ring Network.

In the early 1980s, due to the limits of I/O-bound disk servers and inefficient network operating systems, the average number of personal computers on a network was only five to 10. Today, with improved network operating systems, multiple file server options and greater flexibility in cabling schemes, clusters of personal computer local nets can be connected into a single companywide or organizationwide network joining as many as 1,000 personal computers.

In a personal computer network, connection to a host minicomputer is generally made through an asynchronous communications port in the file server or through a separate asynchronous communications server.

There are also cards available for minicomputers, such as those from Excelan, Inc., that plug into the minicomputer to allow it to be connected directly to the network or through a communications controller attached to the network. In this case, access to the minicomputer is not limited to a 19.2K bit/sec asynchronous speed but to the channel speed of the network.

Terminal server nets

In a terminal local-area network, the terminals and personal computers are connected to the minicomputer over the network through a separate communications server or communications controller. These systems typically cost between $6,000 and $12,000.

Another possible configuration involves a card that is plugged into the minicomputer to act as a communications server. The advantages of including a separate communications server include reduced cabling costs and installation time as well as easier moves and changes.

Other advantages of a separate server include not needing to use ports on the minicomputer and offloading communications functions from the host, thereby freeing up processing resources. Which configuration is best depends largely upon how heavily loaded the system is.

The devices on the network can be terminals, such as Digital Equipment Corp. VT-100s, or personal computers running terminal-emulation software. Unlike personal computer local nets, the burden of processing in a terminal network is on the minicomputer.

Terminal local nets have been a popular solution for replacing direct-connect wiring in minicomputer systems. Companies offering such systems include Bridge Communications, Inc., Ungermann-Bass, Inc., Sytek, Inc., Excelan, Micom-Interlan, Inc. and DEC, which offers DECnet.

PC nets vs. terminal nets

The choice between personal computer-based local networks and terminal local nets must be based on an objective review of the features, advantages, disadvantages and configurative options available for each. Such an examination will give managers benchmarks to compare their needs with the available local net technologies. Some major areas of consideration are:

- **Workstation flexibility.** On a personal computer local net, since processing is distributed, workstations must be intelligent personal computers. On a terminal local-area net, workstations connected to the terminal server may be dumb terminals or personal computers acting as dumb terminals.
- **Cost.** Outside of the minicomputer, workstations and cabling on a terminal local network, the only additional equipment required is the terminal server, which costs about $6,000 to $12,000.

On a personal computer local net, each workstation requires its own network adapter — generally costing $500 to $800 each — and a network file server. Recently developed technology allows part of the minicomputer to function as the file server as well.

In addition, there is the cost of the asynchronous communications server to connect the minicomputer to the network. This cost can be avoided if this function is integrated into the file server, as in the case of Banyan's high-performance Banyan Network Server.

- **Performance.** Depending on network topology — for example, Ethernet, Token-Ring or Arcnet — speed from a personal computer to other network devices on a personal computer local net is typically between 1M and 10M bit/sec.

Access to the minicomputer, however, is limited to 19.2K bit/sec in most cases, since the connection to the minicomputer is implemented through asynchronous communications. If the minicomputer is connected directly to the network, such as an IBM System/36 on a Token-Ring Network, speed is no longer as limited.

On a terminal local-area net, speed from the terminal server to the network is high — for example, 10M bit/sec for Ethernet. But it is low from the asynchronous devices, such as personal computers or dumb terminals, to the terminal server. This limitation will exist whether communication is between two asynchronous network devices or between the network node and the minicomputer. On a personal computer local net, communications between network nodes will take place at network speeds.

The selection process

So which network is the right one? There is no simple answer. As with "What is the best color?" the answer depends on the situation. You may like orange sunsets but not orange suits, or red tomatoes but not red financial statements.

The right decision depends on the user's existing equipment, the role of the work group, future growth, the type of applications run on the network and cost.

- **Existing equipment.** The first factor to consider in deciding which type of network is most appropriate is existing equipment.

If the existing nodes are primarily direct-wired terminals and the need is to connect stand-alone personal computers to the minicomputer, then terminal local nets make more sense. Through the use of terminal servers, cabling costs can be reduced, and, more importantly, so can the cost of future workstation moves.

Terminal local-area networks provide a clean solution with all nodes connected on a single network cable and all activity passing through a central host.

On the other hand, if there are only a few terminals and the company is populated primarily with stand-alone personal computers, users may be better served by a personal computer local net.

- **Role of the work group.** What is the nature of the work group and how would a network be used? Does each work group function independently, or are all work groups tied to a common function?

If there are multiple independent work groups and the primary activity is between stations in each work group, then personal computer local nets or sub-local nets connected with bridges offer more flexibility and better performance.

If there are multiple work groups with strong intercommunication needs, there is no clear-cut answer. It would depend on the amount of traffic between workstations.

For connecting personal computers to one another, the personal computer local net is the clear choice. If, on the other hand, less emphasis is placed on the importance of individual work groups, then the case for terminal local-area nets may be stronger.

- **Future growth.** If the number of nodes is expected to increase in the future, a terminal network that performs adequately today may not meet requirements tomorrow. With terminal local nets, the burden of processing is on the minicomputer. Adding nodes will only degrade performance and may eventually require adding more CPU horsepower.

With personal computer local-area nets, while additional traffic will also degrade performance, processing is distributed and there is no single point of failure, except for the server.

The addition of personal computers also adds processing capacity to the network. Therefore, personal computer local nets can accommodate additional personal computers without significant loss in performance, depending, of course, on whether the personal computers are running applications that require frequent interaction with the network server.

Both types of local-area nets will lose performance as nodes are added. But there is no way to quantify the loss without knowing which applications are being used.

Managers must also look at the incremental cost of adding nodes. For personal computer local nets, each additional workstation requires a network adapter card. In the case of the terminal local-area net, if there is an open port on the terminal server, there is no additional cost, except for the cost of the workstation. However, if all ports on the terminal server are full, then the addition of one terminal may require another terminal server.

Another consideration is the requirement for additional processing power as performance degrades. On a terminal local net, this may take the form of an additional minicomputer host. On a personal computer local net, the server can be a less expensive microcomputer, such as a personal computer or desktop terminal. The vast majority of servers for personal computer local nets are microcomputer-based, though a few are minicomputer-based.

- **Application.** What type of application is being used on the network? An aphorism of the computer industry is that "software drives hardware." In a sense, software should also drive the network decision.

If the dominant applications are personal computer-based, installing a personal computer local net would take advantage of the installed base of software. But in some instances, the application is specialized. A number of minicomputer value-added resellers have developed specialized applications based on specific hosts such as

Continued on page 45

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COMMUNICATIONS MARKETPLACE

NETWORK WORLD

A number of Management Updates, Data Comm Buyer's Guides, Telecom Buyer's Guides, PC Buyer's Guides and Industry Focuses are scheduled to run in **NETWORK WORLD** during 1988. Each of these features will focus on one aspect of the networking and communications industry and give our advertisers a chance to reach a more select audience. These are some of the topics the features will cover:

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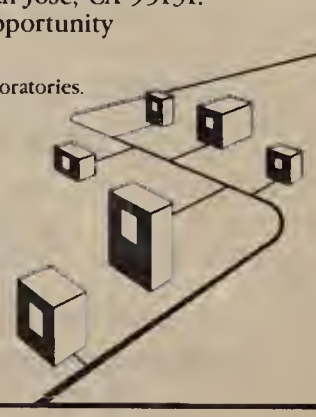

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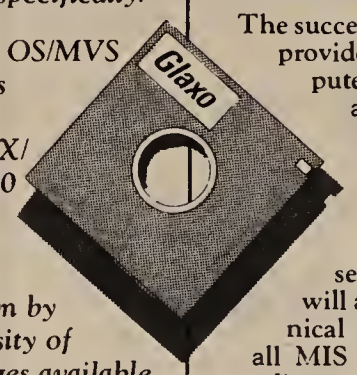

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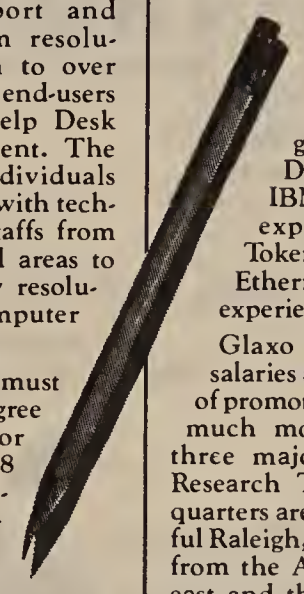

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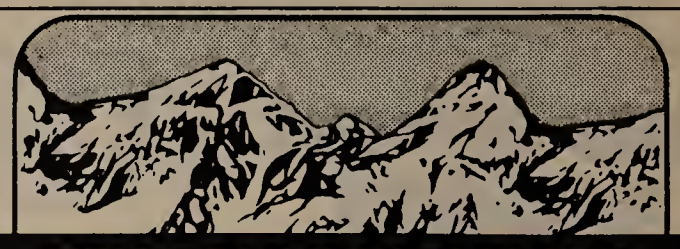

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RBHCs take first step to ONA

continued from page 1

At press time, Southwestern Bell Corp., Nynex Corp. and Bell Atlantic Corp. had filed their ONA plans with the the FCC, and the remaining companies were expected to file by the Feb. 1 deadline.

In simple terms, ONA is a form of equal access for the enhanced services providers. Under the ONA plan, the RBHCs are required to unbundle network services into so-called Basic Service Elements (BSE) and make them available to competing enhanced services providers. ONA requires the companies to provide BSEs to competitors at the same prices the carriers charge themselves.

ONA does not explicitly require the carriers to make BSEs available to end users, although the RBHCs said they will do so if customers request it.

"ONA will allow network-based services to proliferate," which will benefit users, enhanced services providers and the RBHCs, said David Berry, Bell Atlantic's vice-president of regulatory affairs. New services will increase network traffic and corporate revenues, he said.

The types of enhanced services that are expected to develop as a result of ONA include voice messaging, electronic mail, home banking, stock quotation and order entry.

While the RBHCs are hopeful that ONA will foster new business opportunities, their enthusiasm was dampened last September when U.S. District Court Judge Harold Greene imposed limitations on the types of enhanced or information services they can market.

Greene said the RBHCs could sell new enhanced transmission services that build upon their basic local exchange networks but prohibited them from selling services that would allow them to control the content of the information transmitted over their networks.

The RBHCs have been meeting with information services providers and end users for almost two years to identify the network features that should be unbundled and made available to the public.

The RBHCs' ONA plans identified more than 100 network features that will eventually be made available to enhanced services providers. Initially, each RBHC will offer about 20 BSEs, including such functions as call number identification, call block, call forwarding, hunt groups, call redirect, conditioning and bridging.

> "The RBHCs are going to realize that ONA services tailored for large corporations can be a tremendous source of new revenue," Phillips said.

The ONA filings do not specifically state that BSEs are also available to corporate communications users, but RBHC officials said users could very well make use of these building blocks to construct their own information services.

Users initially complained that the RBHCs were ignoring them in the formulation of ONA services, but the RBHCs said they have tried to ameliorate the problem by meeting with corporate users to determine their needs.

"All of the ONA-based services listed in our FCC filing can be purchased by both vendors and users, although we feel they are most applicable to the enhanced services providers," said Michael Picciano, Nynex senior director of ONA planning.

Industry analysts such as Robin Williamson, a principal with Booz, Allen & Hamilton, Inc. in New York, predicted that users will take on an increasingly prominent role in the RBHCs' ONA plans.

John Compitello, vice-president for voice communications at Irving Trust Co. in New York, said users groups are already starting to see some progress.

"One year ago, the RBHCs were very closed-minded about end-user ONA services. Now they're starting to listen because they realize there's tremendous market potential in selling ONA services to end users," said Compitello, who is also chairman of the Public Policy Committee of the Association of Data Communications Users.

Kenneth Phillips, vice-president of telecommunications policy at Citicorp in New York, agreed. "The RBHCs are going to realize that ONA services tailored for large corporations can be a tremendous source of new revenue," he said.

Williamson said the RBHCs have much to gain from end users. "Ultimately, everything depends on the end user. Sophisticated users teach the industry what's needed. Leading-edge users are already operating networks and know what services will succeed."

The FCC is expected to take several months to review the ONA plans before rendering a decision that will allow the RBHCs to market ONA services. "We expect to begin seeing these services around 1989, but it will be three to five years before we see the full benefits of ONA," Compitello said.

The following is a brief description of the RBHCs' ONA plans:

- Ameritech said it plans to introduce 21 initial BSEs in metropolitan areas within its five-state operating region but did not say when.
- Bell Atlantic said it will provide 29 BSEs in 12 metropolitan areas within its seven-state region beginning in 1989.
- BellSouth Corp. declined to elaborate on its ONA plans until Feb. 1.
- Nynex identified 19 new BSEs and will begin making services available in September 1989 in New York and New England metropolitan areas.
- Pacific Telesis Group identified a total of 61 BSEs that will be available in September 1989 in California and Nevada.
- Southwestern Bell Corp. will introduce 20 BSEs beginning a year from when its plan is approved by the FCC.
- US West, Inc. identified 31 existing network features that could be BSEs and 12 new capabilities that could become future offerings.

Checking out connections

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DEC VAXes, Hewlett-Packard Co. HP3000s or Data General Corp. minicomputers.

These applications will not run in personal computer-based local net servers, but some may run in some minicomputer-based servers.

■ **Cost considerations.** In most cases, terminal local-area nets will be less expensive to implement than personal computer local networks. Expenses for personal computer local nets include the cost of the file server, $7,000 to $15,000 for a microcomputer-based unit; the cost of a network adapter card for each personal computer workstation, $500 to $800; and on some networks, the cost of an asynchronous communications server that links to the minicomputer. In addition, workstations on a personal computer local net must be personal computers.

For terminal local nets, workstations may either be personal computers or less costly terminals. The only other cost is the terminal server, or communications server, which is about $6,000 to $12,000 for eight to 32 ports.

If money is no object, users can have the best of both worlds. Some companies implement hybrid systems of personal computer and terminal local nets. With these, personal computers can be connected on a personal computer local net. They can then communicate with one another and with the file server at network speed.

Terminals can also be attached on this hybrid system. Communications with the minicomputer would be implemented through a terminal server in the case of the terminals or through an asynchronous file server in the case of personal computers. The trade-off is cost. Not only is there the cost of the terminal server, there's also the cost of the file server or communications server and adapter card for each personal computer.

Other considerations

Even with all of the above information, there will still be other important considerations for the manager charged with examining network options.

Other considerations include the potential use of voice and video traffic on the network as well as the physical limitations imposed by the building and the locations of users within it. These physical limitations may narrow options for cabling and hardware. A manager wishing to integrate voice, data and video, for example, is limited to broadband networks.

Broadband networks can be either terminal local nets, as in the case of networks from Ungermann-Bass, Bridge and Sytek, or personal computer local nets, as in the case of those offered by Allen-Bradley Co. and IBM.

Choosing a network takes a lot of consideration, because the only conclusion reachable about the right network solution is that there is no pat answer.

Letters:

Editor:

No partnerships between buyer and seller? Lord help us. Are we really ready to go back to the dark ages of marketing in our industry?

Your editorial a few weeks back, "Vendors aren't partners" (Dec. 7), seems to miss the whole point of today's marketing efforts. Vendors that don't attempt to gain a customer's trust in some degree of partnership are not long for this industry. The days of research and development or engineering driving the train of progress are over. We've been into the new age of marketing for several years.

Vendors need input early on from users. It's not "What can you use?" It's "What do you need?" Without the trust built up by close cooperation, those needs won't be fulfilled.

The telecommunications systems integrator is an outgrowth of this wave of marketing. We recognize that users cannot keep up with every new R&D announcement and countless new single-box or software suppliers. We are out there helping customers in a "quasi partnership" that, we hope, proves beneficial to both.

It is no longer a one-box world. Yes, manufacturers have something to sell. Yes, they should be responsive. Yes, they should pay attention to details of contracts and carry on business as professionals should in an ethical manner. You're preaching to the choir there.

But don't forget the close relationship needed to breed progress in our society — it's the basis for our future. Down with partnerships? No way. Let's learn to be better partners in all our business relationships.

Don Rimmer
Executive vice-president
and partner
Digital Support Systems, Inc.

Letters may be edited for space and clarity.

US Sprint slashes rates

continued from page 2

state and intrastate calls, as well as a virtual banding price scheme. US Sprint said users of the service will realize savings of 10% to 15% over AT&T's similar Readyline service.

Openline 800 will use WATS access lines and is targeted at companies with between 200 and 1,200 hours of 800 service per location per month. US Sprint said the service offers users 8% to 12% savings over similar AT&T service.

The carrier also announced six new routing features that can be used with its current Ultra 800 and Direct 800 services, as well as with Fonline 800 and Openline 800. They are: area code routing, time-of-day routing, day-of-week routing, day-of-year routing, area code selection and call allocator.

US Sprint said the cost of calls made between VPN sites, known as on-network calls, will drop an average of 7.7%. Calls originating from or terminating at off-net locations will not be affected by the VPN price cuts.

VPN pricing is currently line-averaged. This means the carrier divides the user's amount of traffic in minutes by the number of access lines to determine what volume discount the user receives. US Sprint will replace its current volume discount plan with a plan that assesses volume discounts based on total usage.

VPN Optimum, a new service category that combines the strengths of VPN WATS and UltraWATS pricing for off-network calls, was created. VPN Optimum does not carry a subscription cost. The new service category provides both large and small users a single scheme for pricing of off-network calls.

US Sprint said a total of 13 new VPN features, including Forced Network Routing, a new version of switched access and Class-of-Service Screening, will be introduced this year.

Forced Network Routing will enable the user to access a VPN network using a 10-digit dialing plan, instead of the service's seven-digit dialing scheme.

Many large corporations currently use 10-digit dialing plans. Those users have decided against switching to seven-digit plans because this would require the creation of new on-line and hard-copy directories — an expensive undertaking.

AT&T posts $2b profit for 1987

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AT&T's private branch exchanges, key systems and computer products remained flat, at 1986 levels. Sales of transmission products, particularly some older analog products, declined over the year. AT&T would not divulge financial details about specific product lines.

AT&T said revenue from equipment rentals continued to decline, falling 30% in 1987. Once a strong source of revenue, rentals of telephone equipment contributed slightly more than 10% of total revenue in 1987.

George Dellinger, a partner with Washington Analysis Corp. in Washington, D.C., said rate regulation continues to hamper AT&T's revenue growth.

"AT&T will continue to spin its wheels [with revenue growth] until the profit ceilings are lifted off its long-distance business," he said. He expects the Federal Communications Commission to lift those ceilings and adopt a price cap plan for regulating AT&T in early 1989, a move "that would offset the declines in rental revenue," he said.

AT&T has struggled to keep costs under control. In 1987, the carrier completed roughly half of a wide-ranging plan to consolidate facilities and staff positions using money from a $2.2 billion pretax write-down taken in 1986. Gardner said the work force, which now numbers 303,000, has been reduced by 14,000 since 1986. A number of plant consolidations have eliminated much of the excess capacity the company had in chip manufacturing and repair and in distribution facilities. Consolidation efforts will continue throughout this year, she added.

IBM adds to X.25 line

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total throughput of 3.088M bit/sec. When configured with parallel T-1 links, the device can dedicate 3.088M bit/sec of bandwidth to one direction of transmission.

While welcome, analysts said the extra bandwidth falls short of customer needs. They said a mainframe transfers data at a rate of 24M bit/sec and the 3737 can move data at a rate of only 3M bit/sec. "Customers really need a T-3 connection for channel-to-channel communications," Dzubeck said.

In a press briefing, Ellen Hancock, president of IBM's Communication Products Division, said the company plans to improve its voice network management capabilities and will develop new software packages designed to handle facilities management, network optimization and accounting. She said the packages will be based on IBM's DB2, a mainframe data base management system.

Hancock's remarks indicate that IBM is responding to AT&T's network management challenge.

Last fall, AT&T announced its Unified Network Management Architecture, a blueprint for integrated network management products. It includes a wide range of voice management capabilities. Analysts report NetView will have to match those capabilities in order to emerge as the de facto standard.

Bank hones its strategic edge

continued from page 1

every year since 1982, representing business taken from banks with less foresight.

But now BayBanks is giving its competitors access to the very gold mine it used to build its business. The bank swapped exclusivity for greater customer convenience by joining a regional ATM network that gives local competitors access to BayBanks' 800 ATMs.

"Proprietary ATM systems have pretty much outlived their usefulness," said John Love, publisher of "Bank Network News," an industry newsletter in Chicago. "The rules of the game have changed."

Membership in regional and national ATM networks is on an upswing nationwide, Love said. Latecomers get to jump on the ATM bandwagon without having to install many machines. Early ATM proponents get new customers and collect fees from other banks whose customers use their ATMs.

BayBanks competitor Bank of Boston Corp., which has 150 of its own ATMs, gained access to BayBanks ATMs in November when it joined the New York Cash Exchange (NYCE) regional ATM net. BayBanks joined NYCE last year.

"Let [Bank of Boston] customers use our X-Press 24 machines," said Ann Humphrey, a senior vice-president at BayBanks. "We want to show them what they're missing."

Other ATM giants think the same way. Chances are getting greater every day that one bank's card will be accepted in another bank's ATM, according to the American Bankers Association (ABA) in Washington, D.C.

About half of all U.S. banks with ATMs belong to nationwide networks such as those operated by Plus System, Inc. and Cirrus System, Inc., said Ed Alwood, an ABA spokesman. Some of these banks and many others belong to regional networks, too, he said.

But with the race toward greater convenience under way, even many regional networks are seen as too limited and are disappearing via merger, Love said.

"When I started this newsletter six years ago, there were about 200 regional networks," he said. "Many of those have merged [into bigger networks], and now there are about 100. There won't be more than 30 networks by the early 1990s."

Livia S. Asher, vice-president at Fox-Pitt Kelton, Inc., an investment firm in New York, said, "In 10 or 20 years, there will probably be a universal banking card."

Many networks are connected through interstate bank mergers, observers said. When a bank acquires another bank that is hooked into a different network, it tries to avoid paying an extra network fee by either pushing the ATM networks to merge or pulling out of one of the networks, they said.

In some states, including Georgia and Connecticut, a high percentage of financial institutions with ATMs have migrated toward a single regional network.

"It's been one of those rare win-win situations," said Georgia Interchange Network, Inc. President Ron Dennis, who added that more than two-thirds of Georgia banks with ATMs are members of his company's Avail network. In March, cardholders from Avail will gain access to ATMs in Florida and Alabama's major networks, he said.

Banks small and large are beneficiaries of ballooning networks, said Jim Callan, senior director for the Electronic Funds Transfer Association in Washington.

"Small banks increase their market share without spending a great deal of money," Callan said. "They can use that money for marketing their expanded systems or to invest in new services."

About the only disadvantage of these sprawling networks is that some banks could dump the burden of installing new ATMs on their fellow network members. As yet, banks have not reported this as a problem.

In some states, financial institutions with ATMs have migrated toward a single regional network.

In fact, an upsurge is expected in the ATM market as older machines need to be replaced. Inexpensive, one-purpose machines — that is, fast cash only — are also expected to become more prevalent in places like airports and fast-food restaurants that have not yet been saturated with ATMs, Callan said.

There are still a few network holdouts. Citibank, N.A. in New York and BANC ONE Corp. in Columbus, Ohio, are among the few banks that claim to have kept their ATMs to themselves.

Citibank's 10-year-old system is so spread out in the Empire State that it doesn't have much to gain by sharing its money machines, said Bill McGuire, Citibank's assistant vice-president. Citibank has about 800 machines in the New York metropolitan area, he said. "Our customers are satisfied," McGuire said. "That is our main concern."

Citibank has taken advantage of national networks in that its cards can be used in some 7,000 other machines, like MasterTeller from MasterCard International, Inc., McGuire said. But such systems do not allow other banks' cardholders to use Citibank machines, he said.

Citibank might have to rethink these policies, however, said Henry Mundt, senior vice-president at Cirrus System, which has been acquired by MasterCard International. Within two years, MasterTeller will be phased into Cirrus, which requires members to share ATMs, he said.

"They have reasons for going it alone," Asher said. "Perhaps they want to avoid customers from other banks crowding their ATMs."

FEP headlines IBM rollout

continued from page 1

The Model 410 is a redundant version of the Model 210, the first redundant front-end processor IBM has offered.

Available in September, the 3745 Model 410 will feature two central processors, each capable of supporting 8M bytes of random-access memory, two internal buses and two hard-disk drives. In the event of a component failure, customers can switch over the backup equipment.

According to L. David Passmore, principal at Network Strategies, Inc., a Fairfax, Va., consulting firm, customers that worry about reliability often buy two front-end processors and link them using a matrix switch. He said the redundant IBM 3745 presents a less expensive alternative.

The IBM 3745 Model 410 is not truly fault tolerant, analysts said, because network operators have to intervene manually to switch in spare devices.

"IBM would have to rewrite almost all of its communications software to support a fault-tolerant system," Passmore said. "It makes more sense for the company to add redundancy, rather than make its front ends completely fault tolerant."

Frank Dzubeck, president of Communications Network Architects, Inc., a consultancy in Washington, D.C., said the IBM 3745 has the power to support T-1 and other high-speed digital network facilities that the current IBM 3725 lacks. Power limitations often make the 3725 a bottleneck in large networks.

IBM said its 3745 can support up to eight T-1 lines, but analysts said it is more realistic to expect the front end to be able to support only two or three T-1s.

Horsepower is still an issue. The 3745 can support 8M bytes of memory per processor, but eight T-1 lines operating at a speed of 1.544M bit/sec would require 12M bytes of memory, according to Passmore.

He also pointed out that the 8M-byte processor memory is used to handle machine functions other than T-1 support. Typically, only 4M bytes of memory would be available for T-1 links, meaning processors could support the data throughput equivalent of roughly 2½ T-1s.

New versions of NCP

IBM also unveiled new versions of the Network Control Program (NCP) — front-end processor software — for the IBM 3745 and the older 3725. NCP works in conjunction with IBM's host-based VTAM software to establish connections within SNA networks.

The newly announced NCP 5 Release 1 enables a 3745 to support dial-up connections and is said to provide more efficient support than earlier NCP versions for multidrop leased-line circuits.

The new version of NCP, coupled with a new release of VTAM announced last June, will also enable customers to add and delete network devices dynamically. Previously, customers had to take down the whole network to make changes.

In addition, NCP Version 5 Release 2, which will be available in December, will enable a 3745 to be configured as a PU 2.1 device within an SNA network.

As a PU 2.1 device, the front-end processor will be able to initiate so-called bind commands to create sessions with remote devices. Currently, only VTAM can initiate bind commands. The new software will minimize the degree of host intervention necessary to route traffic through an SNA network.

NCP Version 5 Release 2.1, also slated for December release, will enable a front-end processor to establish connections to other communications controllers over an IBM Token-Ring Network.

For existing 3725 and 3720 front-end processors, IBM announced: NCP Version 4 Release 2, which enables a 3725 or 3720 to support switched and multipoint wide-area network connections; NCP Version 4 Release 3, which enables a 3725 to support PU 2.1 capabilities; and Version 4 Release 3.1, designed to allow the 3725 to support peer-to-peer NCP connections over an IBM Token-Ring Network.

IBM also changed the pricing structure for NCP.

Customers, who were once charged a set price for each version of NCP, will now be charged according to options used and front-end configuration. Dzubeck said the pricing may make the software more appealing to small customers who do not require sophisticated features.

Analysts agreed that the new front ends will put more pressure on NCR Comten, Inc., which has been struggling to increase its share of the IBM-compatible front-end processor market.

Atul Kapoor, vice-president at Kaptronix, Inc., a Haworth, N.J., consulting firm, said IBM views its front-end products as central to its SNA strategy. With IBM aggressively attacking the front-end processor market, NCR has fewer opportunities to differentiate its products.

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CALENDAR

Feb. 8-9, Washington, D.C. — T-1 Users Conference. Contact: TeleStrategies, Inc., 1355 Beverly Road, McLean, Va. 22101.

Feb. 8-11, Dallas — UniForum 88: The Fifth Annual International Conference of Unix Systems Users. Contact: UniForum 1988, Suite 205, 2400 E. Devon Ave., Des Plaines, Ill. 60018.

Feb. 16-18, New York — Dexpo East '88 Conference. Contact: Expoconsul International, Inc., 3 Independence Way, Princeton, N.J. 08540.

Feb. 22-23, Tempe, Ariz. — Wiring Intelligent Buildings. Contact: Arizona State University, College of Engineering and Applied Sciences, Center for Professional Development, Tempe, Ariz. 85287.

Feb. 22-24, San Francisco — Data Communications Network Design and Optimization. Contact: Institute for Advanced Technology, 1450 Energy Park Drive, St. Paul, Minn. 55108.

Feb. 24-26, Monterey, Calif. — Advanced Local Telecommunications & The Future of the RBOCs. Contact: Probe Research, Inc., P.O. Box 590, Morristown, N.J. 07960.

Feb. 25, Houston — The Nuts and Bolts of Voice/Data Integration. Contact: Southwest Communications Association, P.O. Box 53417, Houston, Texas 77052.

Feb. 25-26, Washington, D.C. — Satellite Technology: A Seminar for the Non-Technical Manager & Executive. Contact: Phillips Publishing, Inc., 7811 Montrose Road, Potomac, Md. 20854.

Feb. 25-26, New York — Teleprocessing for Operations Personnel. Contact: WHJ Associates, Inc., P.O. Box 11276, Newington, Conn. 06111.

Feb. 28-March 4, Bal Harbour, Fla. — American Bankers Association's 1988 Bank Telecommunications Conference. Contact: American Bankers Association, 1120 Connecticut Ave., N.W., Washington, D.C. 20036

Feb. 29-March 2, Chicago — Troubleshooting Data Communications Networks. Contact: American Institute, Inc., 55 Main St., Madison, N.J. 07940

March 2-4, Washington, D.C. — Satellite VII: New Market Opportunities in Satellite Communications and Broadcasting. Contact: Phillips Publishing, Inc., 7811 Montrose Road, Potomac, Md. 20854.

March 3, Hollywood, Fla. — EDI/X.400. Contact: Electronic Mail Association, 1919 Pennsylvania Ave., N.W., Washington, D.C. 20006.

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